

**ENERGY AND ENVIRONMENT CABINET  
STRATEGIC PLAN—PROGRESS REPORT  
2014-2018**

**ENERGY AND ENVIRONMENT CABINET STRATEGIC PLAN**

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## ENERGY AND ENVIRONMENT CABINET

### Overview

The Energy and Environment Cabinet was created through an Executive reorganization in June 2008 by Governor Steve Beshear to more efficiently manage Kentucky's energy, natural resources, and environmental programs. The creation of the Energy and Environment Cabinet allows a more efficient and effective use of state resources in critical areas of environmental protection, mine safety, natural resources management, and energy policy development. Under the previous structure, the environmental and natural resources programs were part of a larger cabinet (the Environmental and Public Protection Cabinet) that contained many disparate programs with widely different missions.

The Energy and Environment Cabinet includes three departments: the Department for Environmental Protection; the Department for Natural Resources; and the Department for Energy Development and Independence. The Department for Energy Development, unlike the other two departments, did not exist under the EPPC structure. With the creation of the Department for Energy Development and Independence, the state's energy programs are elevated to cabinet level to help the state achieve its energy development and energy security goals.

The EEC Strategic Plan is organized by department and each section includes a departmental organization chart.

### ***Mission***

Improve the quality of life for all Kentuckians by protecting our land, air, and water resources; utilizing our natural resources in an environmentally conscientious manner; and innovating and creating efficient, sustainable energy solutions and strategies that reduce greenhouse gas emissions and create a base for strong economic growth.

### ***Vision***

To be recognized as a leader among the states for holistically addressing energy, natural resources and environmental challenges.

### ***Core Values & Principles***

- *Integrity:* We believe in adherence to the highest standards of professional conduct.
- *Fairness:* We implement and enforce the cabinet's regulations fairly across all regulated entities.
- *Reliability and Timeliness:* We are committed to responding to all citizens, regulated entities, elected officials, media, federal, state, and local government agencies, and others who depend on answers, permits, etc., in a timely manner.
- *Courtesy:* As primarily a regulatory agency, we take seriously the importance of being courteous in all of our discussions and correspondence with regulated entities.

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- *Cooperation:* We do not act alone in carrying out the cabinet's mission, and our success depends greatly on mutually supportive interactions with our federal counterparts, other agencies in state government, and local governments.
- *Accountability:* We are fully accountable for our actions and decisions that have an impact on citizens and industries.

### ALIGNMENT OF EEC STRATEGIC PLAN WITH THE GOVERNOR'S GOALS

Evident in the EEC strategic plan are efforts or planned efforts to create economic opportunities, create a healthier Kentucky, enhance educational excellence, ensure safe communities, and enhance responsible government. Our regulatory agencies implement and maintain a broad range of environmental standards designed to protect human health and our air, water, and land resources. A healthy environment is integral to a healthy economy and prospects for job creation. The cabinet works in cooperation with local entities to ensure safe communities by establishing programs to reduce the incidence and impact of wild land fires. Our programs also protect coal miners, loggers, agricultural workers and other in their jobs, jobs that often have a higher level risk than many other occupations.

How we develop and utilize our energy resources in the 21<sup>st</sup> Century will be significantly different from what we have done in the past. We must realize that energy prices are increasing and will likely continue to increase at rates faster than the general cost of living. In today's complex and highly industrialized society, reliable, affordable energy is a right for all Kentuckians and is key to growing Kentucky's economy. Creating and supporting energy-related jobs in Kentucky is a high priority within the EEC, and several strategic goals support the Governor's plan for overall 21<sup>st</sup> century job creation.

Toward that end, the cabinet has a number of initiatives that support Governor Steve Beshear's goals to link environmental, natural resources and energy programs in a holistic and cooperative manner. The Cabinet is committed to making sure its regulatory programs remain responsive to the changing requirements of related federal environmental programs while remaining consistent with state regulatory requirements.

DEPARTMENT FOR ENERGY DEVELOPMENT AND INDEPENDENCE

**Overview**

An overarching goal of the Department for Energy Development and Independence (DEDI) energy plan has been to identify and address those actions that can be implemented in sufficient time to help citizens and businesses prepare for the inevitable changes that will occur in the national and global energy landscape in the years ahead. The scientific community worldwide and global consortia are concerned that we must act immediately to reduce the impact of greenhouse gases. Environmental protection includes intelligent use of land as well as nonrenewable and renewable resources. The DEDI plan will help Kentucky ensure the viability of two signature industries – mining and agricultural industries – while addressing the global issue of greenhouse gasses and, at the same time, allowing new vibrant industries that provide high-paying, quality jobs to flourish.

For Kentucky to be a national energy leader, we must fully integrate the development of our energy resources with our mission to protect the environment and strengthen our economy. Therefore, these principles address measures to utilize our fossil resources in a cleaner, more efficient manner, and in a way that will help us assure energy security. In fully utilizing our biomass, solar, wind, hydro and other renewable energy resources, we not only strengthen our energy and economic security – by diversifying our electricity and transportation fuels portfolios – but we also help the commonwealth reduce its carbon dioxide and other greenhouse gas emissions and other pollutants in a significant way. The plan, when fully implemented, will restructure our energy portfolio in such a way that we can use energy in its broadest sense as a tool for economic development, which Kentucky desperately needs.

With this action-oriented energy plan, DEDI will help Kentucky move forward with accomplishing the following by 2025:

- Provide new Kentucky jobs as a result of a diversified energy sector.
- Reduce Kentucky's independence on imported oil.
- Maintain and potentially grow Kentucky's position as a national net energy exporter.
- Reduce Kentucky's greenhouse gas emissions by 17 percent below 2005 levels, while ensuring Kentucky's economic viability.
- Optimize our renewable energy resources, utilizing wind, solar, hydropower, landfill gas, and biomass.

If we succeed, we shall have produced greater economic and energy security for all Kentuckians, while creating significant job growth and economic development in a wide diversity of agricultural, energy, high tech and service companies; a cleaner and healthier environment; a reduction in Kentucky's contribution to global warming; greater energy efficiencies and independence; and a more substantial corporate tax base to support higher quality healthcare, education and transportation for all of us throughout the Commonwealth of Kentucky.

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### **Kentucky's Energy Plan**

The plan proposes a Renewable and Efficiency Portfolio Standard (REPS) whereby 25 percent of Kentucky's energy needs in 2025 will be met by reductions through energy efficiency and conservation and through use of renewable resources. Energy efficiency and renewable energy initiatives are designed to help the commonwealth achieve the REPS. These initiatives allow Kentucky to implement actions to reduce energy use and carbon dioxide emissions in a timely and cost-effective manner. However, even with an aggressive REPS, Kentucky will still need to look at our traditional energy source – coal, with an expanded cleaner product line – and other options such as nuclear.

Our growing reliance on imported oil presents economic and security threats that are untenable. Therefore, the plan also proposes an Alternative Transportation Fuel Standard (ATFS) to help us transition away from dependence on foreign petroleum. Kentucky can displace 60 percent of its reliance on foreign petroleum by utilizing fuels such as those derived from biomass and coal, plug-in hybrid vehicles, and compressed natural gas (CNG), and we can do this by building upon our existing infrastructure.

Elements of the ATFS are captured through plug-in hybrids, biofuels and natural gas. Equally important as weaning the state from imports of foreign oil is developing our natural gas opportunities. These opportunities can be through enhancement of Kentucky's natural gas infrastructure and development of unconventional natural gas drilling techniques.

To achieve our greenhouse gas reduction goals, deployment of carbon dioxide capture and utilization technologies on a large scale is crucial. Initiatives in the energy plan will help Kentucky develop aggressive carbon capture and utilization projects, with a goal that by 2025, 50 percent of Kentucky's coal-based energy facilities will be equipped with carbon management technologies.

A final key component to reducing Kentucky's carbon dioxide emissions is deploying non-carbon dioxide emitting technologies to meet our base load electricity generation needs in the future. One option that must be considered is nuclear power. The energy plan provides an important discussion of the environmental, security and economic issues surrounding nuclear power.

Following is an overview of the initiatives, goals and actions in the energy plan. The plan embraces a Renewable and Efficiency Portfolio Standard to provide 25 percent of Kentucky's energy needs by 2025 through energy efficiency, renewable energy and biofuels and an Alternative Transportation Fuel Standard designed to reduce Kentucky's dependence on imported oil by 60 percent by 2025.

### ***Kentucky's Energy Initiatives***

#### **Improve the Energy Efficiency of Kentucky's Homes, Buildings, Industries, and Transportation Fleet**

Kentucky has been a high user of energy largely because of our historically low electricity rates. We have had little incentive to conserve, and thus we are over-users. This must change. Kentucky can achieve its greatest and most cost-effective reduction in GHG emissions through energy efficiency in all sectors: residential, commercial, industrial and transportation. We can forestall construction of some additional generation facilities through energy efficiency. Therefore, our leading goal, and our utmost advantage in achieving the overall objectives of this plan, is greater energy efficiency.

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**Goal --** *Energy efficiency will offset at least 18 percent of Kentucky's projected 2025 energy demand.*

In Kentucky we are experiencing dramatic increases in costs for our electricity and petroleum. It is likely that the prices for these commodities will continue to increase, and therefore consumers' energy bills will continue to rise. The choice we face is to take no action and see large bill increases with limited economic security, or to take prudent actions now and realize a better chance for smaller price increases as well as increased economic security. In the near term, energy efficiency and conservation represent the fastest, cleanest, most cost-effective, and most secure methods we have to reduce our demand for energy and to help us address issues surrounding global climate change.

### **Actions to Achieve the Goal**

- The Department will encourage an Energy Efficiency Resource goal be set to support the energy efficiency portion of the REPS with a goal of reducing energy consumption by at least 16 percent below projected 2025 energy consumption. To achieve the goal, a combination of both utility-sponsored and non-utility-sponsored energy efficiency programs will need to be developed and implemented.
  - Through a \$500,000 cooperative agreement with the U.S. Department of Energy, DEDI, and its contractor/partner the Midwest Energy Efficiency Alliance (MEEA), implemented the Stimulating Energy Efficiency in Kentucky (SEE-KY) program that wrapped up in the fall of 2013. This initiative was geared toward helping to integrate energy efficiency into Kentucky's economy. The final product was the "SEE KY Action Plan" which laid out 27 specific action items for residential (7), commercial (6), and industrial (4) sectors, along with another six that applied to all sectors and four that were recommendations to federal agencies. This plan is informing and guiding many of the Tactics of this Strategic Plan.
- The Department will work with other state government entities toward establishment of transportation energy efficiency programs designed to contribute another two percent reduction representing energy savings corresponding to approximately 500 million gallons of motor fuel annually.
  - Under the Energy in Education Collaborative, the Department provided information through partners on energy efficiency activities associated with transportation, such as bus idling policies, for use in schools and schools systems in Kentucky.
  - DEDI's partner, the Clean Fuels Coalition, has been instrumental in executing the Hybrid School Bus initiative, that placed approximately 160 hybrid school busses in school districts across the state.
  - Recent efforts by the federal government to improve Corporate Average Fuel Economy (CAFE) standards will continue to improve the average fuel economy of vehicles in Kentucky, thereby helping to reduce annual fuel consumption.

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- The Department will continue strong education, outreach and marketing programs that will support all energy efficiency activities throughout the state.
  - DEDI continues to support and engage all partners in promoting energy efficiency and conservation through its various programs. Traditional media are used, including web pages, social media, email blasts, newsletters, etc. To extend our reach, DEDI continues its successful partnership with the University of Kentucky Cooperative Extension Service through a traveling set of exhibits and displays that can be provided at home and garden shows, energy fairs, and other commercial and community events. The Energy Efficiency Awareness and Action (E2A2) initiative extends this partnership by providing energy training to county extension agents around the state so that they can be on the front line for homeowners and businesses, assisting them with resources and tools to help them manage rising energy costs.
- The Department will continue to work with other state government entities to establish an energy efficiency program for state government that has aggressive internal energy savings targets. This program will be important as it establishes a leadership role for state government, and creates many new, well informed energy efficiency advocates for Kentucky.
  - Using \$3.65 million of American Recovery and Reinvestment Act (ARRA) funds DEDI partnered with the Finance and Administration Cabinet to develop and implement the Commonwealth Energy Management and Control System (CEMCS). The goal of the project is to obtain real-time building energy utilization, provide notification to managers when building HVAC or other systems are operating outside of established parameters, better control occupant comfort and control energy consumption and cost. This project was implemented in 2013 with an initial suite of 26 state facilities. Since that time the state biennial budget allocated \$15 million to bring in additional facilities under the operation of CEMCS. There are currently 82 state buildings in the system, representing 14.9% energy savings and \$2.17 million in utility cost savings. KCTCS (Kentucky Community and Technical College System) is currently entering into a contract to install CEMCS on four of their college campuses. Eventually the award-winning CEMCS program will be made available to school districts, public universities and city and county government units.
  - Over \$200 million has been used in Kentucky for Energy Savings Performance Contracts to improve energy consumption within state government buildings. \$14.7 million in ARRA funding was used to establish the Green Bank of Kentucky, and all \$14.7 million has been loaned out. To date, using repayment principal and interest, a \$549,395 loan to Kentucky State Police has been made and over \$2.3 million is in the bank for a planned State Parks ESPC and other projects.
  - A \$607,700 grant from DEDI provided funding to the Department for Local Government (DLG) to support a Local Government Energy Retrofit Program (LGERP) that strives to increase the awareness and utilization of energy savings performance contracting to improve the energy performance of public facilities by local governments. The project objectives are intended to educate and provide technical and legal support to local officials, and to develop the support structure for DLG to sustain this initiative longer.



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term. To date, over 30 workshops and numerous presentations have been held across the state, with five (of a goal of six) performance contracts being initiated.

### Tactics

- Provide support and seek funding for the sustainability of the Energy in Education Collaborative, including partners and programs with Kentucky Energy Efficiency Program for Schools (KEEPS), National Energy Education Development (NEED) Project, Green and Healthy Schools program, and the School Energy Managers Program (SEMP).
  - DEDI grants continue to support NEED with the annual High Performance Schools Workshop. These workshops and NEED's teacher training sessions continue to be well attended (237 attendees in 2014) and provide a valuable forum for exchange of ideas, technology, and stimulation to the design community and school district leadership. These workshops have helped Kentucky in certifying 256 K-12 schools as ENERGY STAR.
  - DEDI also funded the SEMP with grants to support 37 energy managers at 77 of 173 (44%) school districts across the state. To date, SEMP has documented a cumulative \$36 million, and growing, energy cost savings, 256 ENERGY STAR schools, and an energy use index that has dropped from 64.2 kBtu/sf/yr to 58.6 kBtu/sf/yr in 2013. Total energy use has decreased by 5.6 kBtu/sf/yr, an impressive achievement.
  - The success of this program is further underscored by the fact that LG&E/KU has filed with the PSC and implemented a DSM-funded SEM program based on the cost-effectiveness of this initiative; this program is funding some of the 37 SEMs (the ones in their service area).
  - Kentucky Power is also providing partial salary funding for two SEMP managers in their service territory.
  - DEDI's partner, the Kentucky School Boards Association, is discussing similar arrangements with other electric utilities in an effort to make the program sustainable utilizing demand-side management funding.
- Provide support and continue collaborating with the Energy Services Coalition (ESC) to educate local drinking water and wastewater utilities on the benefits of using energy services performance contracting (ESPC) to save energy, costs, and fund facility improvement projects. Promote ESPCs with local cities and counties.
  - As noted above, a \$607,700 grant from DEDI was provided to the Department for Local Government (DLG) to support a Local Government Energy Retrofit Program (LGERP) that strives to increase the awareness and utilization of energy savings performance contracting to improve the energy performance of public facilities – including buildings, street lighting, water and wastewater infrastructure – by local governments. The project objectives are intended to educate and provide technical and legal support to local officials, and develop the support structure for DLG to sustain this initiative longer term. To date, over 30 workshops and numerous presentations have been held across

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the state, with five (of a goal of six) performance contracts in the pipeline since this project was initiated.

- In total, for all public sectors, over \$750 million in ESPCs have been executed, putting Kentucky among the top five in the nation in absolute terms for performance contracting since enabling legislation in 1996.
- Provide support to a stakeholder process that seeks consensus on energy efficiency and demand response policies and programs with the goal of enhancing the energy productivity throughout Kentucky's economy. Implement the recommendations from the Stimulating Energy Efficiency in Kentucky initiative. (Codes correspond to SEE KY Action items)
  - A1: DEDI staff collaborated with utilities to identify a common set of DSM program reporting elements and has successfully developed a database that can generate demand-side management metrics. DEDI has received two years' worth of data from utilities. Cumulative percentage energy savings, as a proportion of 2012 total sales was 1.1%; incremental percentage energy savings, as a proportion of 2013 total sales was 0.38%. The cost of energy saved for 2012 (using cumulative energy savings data) was \$0.0474; cost of energy saved for 2013 (using incremental energy savings data) was \$0.0158.
  - R1/R2: DEDI funded the Kentucky Housing, Corporation with \$3.0 million to continue their successful KY Home Performance (KHP) program, including the contractor network, low-interest loans, marketing, and contractor software. Additionally, utilizing DEDI dollars, the program is partnering with NextStep to pilot a set of energy efficient ENERGY STAR manufactured homes and providing financial assistance to MACED with their on-bill residential financing program, How\$mart. To date, \$148,979 in loans has been granted for residential retrofits through KHP.
  - R3: The Board of Housing, Buildings and Construction Energy Codes Committee voted not to upgrade the Kentucky Residential Code to incorporate the 2012 IECC. There is some progress, however. DEDI, in partnership with the Midwest Energy Efficiency Alliance (MEEA) secured a \$1.04 million grant from US DOE to do a pre-/post-code compliance study, with a range of activities and measures during the intervening year designed to improve code compliance. This project will run from 2014 through 2017 in partnership with the Department for Housing, Buildings and Construction. The Board of Housing, Buildings and Construction did adopt changes in the Kentucky Building Code that will, effective October 1, 2014, bring the code in line with ASHRAE Standard 90.1-2010 for commercial buildings.
  - R4: DEDI provided \$300,000 in grant funds to MACED to assist with an on-bill loan financing program called How\$mart for several east Kentucky RECCs. To date 33 loans, totaling \$159,268 have been financed through this program.
  - R5: DEDI has participated in a NASEO-sponsored, DOE-funded initiative to explore efficiency options for multifamily rental properties. A range of policy options are emerging, but no universal solution has yet to emerge. The KHC has also been looped into this initiative to inform their activities.

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- R6: In partnership with MEEA and NextStep, an advisory panel was convened to discuss policies and make recommendations for improving the manufactured housing stock. NextStep has been provided grant funds from DEDI, through KHC, to pilot subsidized energy efficient units. Discussions are currently underway for a comprehensive study of the housing stock. EKPC is developing a DSM program designed to incentivize manufacturers of manufactured homes to build to an energy efficiency standard that exceeds current HUD levels.
- R7: DEDI has drafted legislation to increase tax credits for residential energy efficiency measures for the past two General Assemblies. The proposal has yet to be introduced in the legislature.
- C1/C5: DEDI has been working with stakeholders to draft and move legislation on a financing tool call ePAD (Energy Property Assessment Districts) – sometimes known as PACE. This bill cleared the Kentucky House in 2014, and stakeholder efforts are currently underway to move it again this session.
- C2: DEDI has had some discussion with financial firms (e.g. Ross-Sinclair) about ways to leverage the Green Bank funds. More work needs to be done in this area. One option as been to discuss this with the Kentucky Retirement System.
- C3: The state has shown leadership in the areas of Green Bank and CEMCS, as discussed above.
- C4: The Kentucky Board of Housing, Buildings and Construction voted to recommend the state adopt the 2012 IECC energy code. These rules are currently undergoing promulgation putting Kentucky on par with the latest commercial energy building codes.
- C6: DEDI has drafted legislation to increase tax credits for residential energy efficiency measures for the past two General Assemblies. The proposal was introduced but died in committee.
- I2: DEDI partnered with the KY Public Service Commission (PSC) to have a series of meetings/discussions, including utilities, and industry representatives, regarding the industrial opt-out provisions of KRS 278.285. A clear path forward suitable to all stakeholders has yet to develop and more discussion will follow.I4: DEDI has been working with Kentucky Association of Manufactures (KAM), the Cabinet for Economic Development, and other stakeholder to draft legislation on an industrial energy efficiency tax credit (KRS 154.34 010/070/080/110/120). KAM has proposed introducing this bill in the 2015 session.
- F4: The US DOE, along with HUD, have developed a working group (which includes two Kentucky representatives) to revise the HUD manufactured housing energy code. This process is expected to be completed by mid-2015.
- Provide support and provide representation on the Green Bank of Kentucky Loan Committee and continue to seek funding.

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- **DEDI represented the Cabinet on the Green Bank Loan Committee – the Kentucky State Police was the first project (\$500,000) utilizing fully revolved loan funds. Roughly \$2.3 million are awaiting allocation for a State Parks project.**
- Provide support for energy outreach and marketing to the Cooperative Extension Service offices statewide, to promote energy efficiency in the Extension offices, homes, and commercial sector of those communities and for energy outreach and exhibit activities.
  - **DEDI received a \$242,000 competitive grant from the U.S. Department of Energy to expand the Cooperative Extension Service residential and commercial building energy efficiency capacity.** This project has resulted in numerous training events for extension agents, information provided to homeowners and businesses, and CES offices being benchmarked in ENERGY STAR Portfolio Manager.
  - A spin-off initiative funded by DEDI, with the Kentucky Pollution Prevention Center, at UL, will provide energy audits for about eight CES offices, resulting in a ranked set of recommended energy efficiency improvements, with estimated payback periods.
- Provide support for the Midwest Regional ENERGY STAR annual conference.
  - DEDI continues to provide financial support and participate in the planning and marketing of this very successful annual event. Attendance is consistently 300-400 attendees and provides a valuable forum for the residential energy efficiency industry.
- Support administration of State Energy Program grant activities, and work on policy development and energy assurance issues.
  - **DEDI continues to administer the State Energy Program, keeping abreast of the changing requirements and focus at the federal level. A redrafted energy assurance plan was submitted to U.S. DOE in the third quarter.**
- Provide support and seek funding for the Department for Housing, Buildings and Construction (KDHBC) to promote building energy codes and training that save money and help attain the Governor's Assurance of achieving 90% compliance with the recently adopted 2009 International Energy Conservation Code.
  - **Utilizing ARRA funding from DEDI, all 12 HVAC energy code inspectors have fully transitioned off grant funding to support from permit inspection fees.**
  - DEDI, in partnership with the Midwest Energy Efficiency Alliance (MEEA) secured a \$1.04 million grant from US DOE to do a pre-/post-code compliance study, with a range of activities and measures during the intervening year designed to improve code compliance. This project will run from 2014 through 2017 in partnership with the Department of Housing, Buildings and Construction.
- Provide support and seek funding for the Kentucky Housing Corporation to sustain the KY Home Performance program.

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- DEDI funded the Kentucky Housing Corporation with \$3.0 million to continue their successful KY Home Performance (KHP) program, including the contractor network, low-interest loans, marketing, and contractor software. Additionally, utilizing DEDI dollars, the program is partnering with NextStep to pilot a set of energy efficient ENERGY STAR manufactured homes and providing financial assistance to MACED with their on-bill residential financing program, How\$mart. To date, \$148,979 in loans has been made for residential retrofits through KHP.
- Provide support and seek funding for the Governor's Office of Agricultural Policy to sustain the on-farm energy efficiency and renewable energy partnership.
  - The Kentucky Agricultural Development Board was impressed with the initial on-farm energy efficiency program that members unanimously approved an additional \$2 million to establish a state funded program modeled after the program formerly funded through an ARRA grant. An additional \$750,000 in grant funds was provided by DEDI to GOAP for energy projects through 2015.
- Support the State Heating Oil and Propane Price (SHOPP) program to survey winter heating fuel prices in Kentucky.
  - DEDI staff conducted the required survey(s), prepared the final report, and requested funding under the new year application
- Support and seek funding for partners seeking to stimulate the high efficiency, net-zero or Passive House (PH) standards.
  - DEDI staff attend Habitat for Humanity (H4H) meetings and follow PH events to keep up with leading edge efficient home designs.
  - DEDI staff promote High Performance net-zero energy and near net-zero energy schools in the state by funding the annual High Performance Schools Workshops. DEDI contributed to the photovoltaic additions to two schools in the state: Richardsville Elementary (net-zero energy) and Turkey Foot Middle School (near net-zero energy). Fayette County School District's Locust Trace AgriScience Farm is the latest entry into the near net-zero energy schools in Kentucky.
  - Currently, Kentucky is home to five highly energy efficient school buildings with an energy use index of 21 kBtu per square foot per year or less.
  - DEDI provided funding through the Energy Efficiency and Conservation Block Grant to establish a revolving loan fund for the manufacture of energy efficient homes through the House Boat to Energy Efficient Residence project (HBEER). HBEER homes are designed to use at least 50% less energy than comparable size homes. Two homes were completed, sited and sold, one in Monticello and one in Whitley County.
- Provide support, pursue funding, and provide policy guidance that helps stimulate the electric vehicle and alternative fuel vehicle market in Kentucky.

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- DEDI provided \$3.5 million in ARRA funding to the KY-Argonne Battery Research Center. Funds were used to design and build the lab beyond code requirement resulting in a facility that is estimated to perform at a level 54 percent better than a building simply designed to meet energy code requirements. Battery Research Center Laboratory was completed in 2012.
- Provide support to the Kentucky Department of Education (KDE) in their implementation KRS 157.455 to build and operate high performance school facilities in Kentucky.
  - DEDI facilitates discussions among various stakeholders – especially members of the Energy Services Coalition – to review and comment on KDE’s construction regulations as they impact ESPCs.
- Support the continued development and expansion of the Commonwealth Energy Management Control System on a statewide basis.
  - DEDI submitted a competitive grant proposal to U.S. DOE in 2013 for the expansion of the CEMCS program, but it was not chosen for funding; DEDI also facilitated the drafting and submittal of a second proposal in 2014. The Finance and Administration Cabinet was successful in securing \$15 million in their biennial budget for CEMCS implementation, now up to 82 buildings. KCTCS is entering into a contract to install CEMCS on four of their college campuses.
- Provide representation and support to the Finance and Administration Cabinet’s High Performance Building Committee.
  - DEDI continues to attend the meetings and provide information when applicable.
- Evaluate the economic and technical potential for energy efficiency’s role in meeting greenhouse gas limitations.
  - DEDI and DAQ have been very active in cooperatively reviewing and commenting on EPA’s proposed rules on 111(d) of the Clean Air Act, relative to existing electric generating units, especially in regards to how these rules allow for energy efficiency to meet the state’s carbon emissions goal.
- Provide leadership and support a stakeholder process that seeks consensus on advanced energy efficiency technology, such as combined heat and power (CHP), with the goal of increasing the utilization of CHP across the commonwealth.
  - DEDI has secured two separate grants from US DOE, totaling \$195,000, to partner with the Kentucky Pollution Prevention Center and the Kentucky Association of Manufacturers. Activities have included stakeholder input to identify and develop tools, resources, legislation, etc. that can lower the entry barriers for industry (or utilities) to adopt CHP.

### **Increase Kentucky's Use of Renewable Energy**

Kentucky currently relies on renewable resources for three percent of its electricity generation but could expand its renewable electricity portfolio by relying on resources within the state. In 2010, the commonwealth had the 7th largest hydro power production east of the Mississippi, and has the potential to increase hydro capacity by over 50 percent. In fact, 261 megawatts of new hydro capacity is under development in Kentucky by American Municipal Power. Though most of this generation will be consumed outside of Kentucky it will increase Kentucky's renewable energy generation. One utility is utilizing landfill gas for electricity generation at six landfills across the state. There are several sites in Kentucky being examined by developers of utility-scale wind farms. Another company is working to secure a contract on the power produced from a wood to energy facility. Additionally, solar capacity in the state is expanding due primarily to programs offered by the Tennessee Valley Authority. Kentucky has approximately 9 megawatt of solar capacity in the state including a new 2 megawatt solar array at Fort Knox. The Cabinet is partnering with Fort Campbell and Pennyrite Rural Electric Cooperative Corporation to install a 5 megawatt system on post. Kentucky could essentially tap nearly every renewable resource to produce electricity in an effort to meet its goal. The commonwealth should aggressively pursue its options for renewable generation in order to achieve greenhouse gas reductions and diversify our energy portfolio.

**Goal**--*By 2025, Kentucky's renewable energy generation will triple to provide the equivalent of 1,000 megawatts of clean energy while continuing to produce safe, abundant, and affordable food, feed and fiber.*

Kentucky should pursue those resources that are most cost effective to contribute to a clean and secure energy future. Energy from renewable resources benefits the environment while creating economic opportunities for businesses, industries and rural communities.

To achieve this goal, the commonwealth must aggressively invest in the development of its renewable energy resources.

### **Actions to Achieve the Goal**

- The Department will support and promote efforts by state government to lead by example by encouraging new or substantially renovated public buildings to use renewable energy as a percentage of total energy consumption. This effort will build over time to reflect the state's renewable energy and energy efficiency goals. The High Performance Building Committee will also be encouraged to establish renewable energy targets for 2015, 2018, and 2025 for new or substantially renovated buildings.
  - The newly renovated building on the Capitol campus includes solar hot water and PV. This building serves as a visitor center for the campus and the PV panels were installed using a grant from the Department. There have been limited efforts to address renewable energy targets for state buildings with the High Performance Building Committee.

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- The Department will recommend to the Cabinet, policies and incentives necessary to achieve the state's renewable energy goal. The analysis will include implementation plans for the REPS for Kentucky's electric utilities.
  - DEDI staff have identified opportunities to encourage both distributed and utility-sponsored renewable energy. Specifically, DEDI has studied the use of lease arrangements and power purchase agreements which remove the upfront cost barrier for distributed renewable energy and has studied the use of incentives instead of mandates for encouraging utility-sponsored renewable energy projects.
- As Kentucky's forest resources can potentially contribute more than 50 percent of Kentucky's renewable energy potential, the Department will review existing Cabinet policies and regulations to encourage the responsible, sustainable use of woody biomass within the guidelines of environmental protection.
  - DEDI staff coordinated a proposal and was successful in being awarded \$250,000 in USDA Forest Service funding for the development of a Statewide Wood Energy Team (SWET) in Kentucky. The SWET will be a coalition of agency, university, association, and industry stakeholders working to expand sustainable wood energy utilization throughout the state. Initial areas of focus will be to explore wood heating options for poultry farms and expanded wood energy opportunities for eastern KY.

### Tactics

- In conjunction with the High Performance Building Advisory Committee promote and establish renewable energy targets for 2014, 2018 and 2025 for new or substantially renovated state buildings. Amend regulations as needed to incorporate these standards.
  - There has been no activity in this area.
- Develop best practices for state agencies selling renewable electricity credits.
  - There has been no activity in this area.
- Track and report on renewable energy generation in Kentucky.
  - DEDI staff produced the 2012 Kentucky Energy Profile which contains information on renewable energy generation.
  - DEDI staff awarded grant funds to Bowling Green Schools for the installation of 5kW solar PV and hot water heater.
  - DEDI staff continue to work with Ft. Campbell on the installation of the 5MW solar array, partially funded with a grant from DEDI.
- Track and report on renewable energy manufacturing in Kentucky.



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- DEDI staff produced the 2012 Kentucky Energy Profile which contains information on industrial energy use.
- Track and report on significant changes at the federal level that could impact Kentucky's renewable energy generation.
  - During presentations about renewable energy, DEDI staff provide publications and information about new EPA rules and changes in tax credits which could affect demand for and supply of renewable energy.
  - DEDI's modeling and forecasting effort has led to information available online about Kentucky's future electricity and coal demands which are influenced by federal EPA rules. Changes in demand for electricity and coal could impact current and potential renewable energy generation.
  - DEDI staff anticipate EPA's final rule related biogenic emissions to be published in late 2014. These decisions could impact the competitiveness of biomass resources being evaluated as fuel for electric generation.
- Track and support on significant changes in markets for renewable electricity credits that can affect Kentucky-based renewable generation systems.
  - DEDI staff provide information online about renewable energy credits (REC) markets and links to those markets Kentucky generators can sell solar RECs into.
- Study and report on the economic and environmental impacts of a renewable energy portfolio in Kentucky.
  - The Sustainable Energy Alliance published a report that described the benefits of a clean energy portfolio standard. DEDI staff provided the authors with information regarding Kentucky's resource potential and renewable energy costs. Additionally, DEDI staff supplied the authors of the report with comments and held a conference call with the authors to discuss areas of agreement and disagreement. DEDI has developed the capacity to analyze and model the impact of Kentucky renewable energy portfolio.
- Support legislation that removes barriers for those pursuing renewable energy on a voluntary basis.
  - There has been no activity in this area.
- Support awareness of renewable energy in Kentucky.
  - DEDI staff continue to provide presentations to the public including a session on distributed renewable energy at the annual Governor's Conference on Energy and the Environment.
  - DEDI staff created the Kentucky Renewable Energy Roundtable to foster networking and discussion of renewable energy topics

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- DEDI staff continue involvement in the TVA Renewable Information Exchange and the Value of Solar methodology meetings
- DEDI staff continue to work with and provide direction to the University of Kentucky Center for Applied Energy Research (CAER) on the deployment of Kentucky Energy Club chapters at Kentucky universities.
- DEDI staff created and distributed a GIS map depicting the development of solar energy generation for Kentucky.
- DEDI staff have developed and distributed maps that illustrate the federal and state funded project distribution for renewable energy projects.
- DEDI staff have formalized a partnership agreement with EPA's AgSTAR program. This program has been established to promote awareness and provide technical support for livestock based anaerobic digester energy systems.
- The Kentucky Division of Biofuels became an Associate Member of the Biomass Thermal Energy Council and will be coordinating a National Bioenergy Day event at Murray State University.
- Maps that illustrate the geographic distribution of renewable energy interconnection with the state utilities have been developed and publicized by DEDI staff.
- Identify and provide outreach to electricity customers that could benefit from combined heat and power systems.
  - DEDI staff are working with the Combined Heat and Power Technical Assistance Center to identify industrial facilities that will need to respond to new EPA rules pertaining to industrial boilers. The Center is helping impacted facilities with a cost benefit analysis for retrofitting boilers with CHP systems.
- Identify and resolve current regulatory and permitting barriers to generating renewable energy.
  - There has been no activity in this area.
- Staff four (4) meetings per year of the CRERES board of directors.
  - The department has continued the coordination of the Center for Renewable Energy Research and Environmental Stewardship (CRERES) board meetings.
  - CRERES has a full board appointment and meets quarterly.
- Coordinate the CRERES annual report to be submitted to the legislature.
  - The annual report was submitted October 24, 2013.

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- Encourage the responsible and sustainable use of woody biomass.
  - DEDI staff have had several meetings with the KY Division of Forestry, the University of Kentucky's Forestry Department, and various forest industry representatives to strengthen collaboration in these areas.
- Work with the forest industry and other stakeholders to identify opportunities to develop woody biomass and barriers that must be addressed.
  - DEDI staff coordinated a proposal and was successful in being awarded \$250,000 in USDA Forest Service funding for the development of a Statewide Wood Energy Team (SWET) in Kentucky. The SWET will be a coalition of agency, university, association, and industry stakeholders working to expand sustainable wood energy utilization throughout the state. Initial areas of focus will be to explore wood heating options for poultry farms and expanded wood energy opportunities for eastern KY.
- Support legislation that enables the use of power purchase agreements for clean energy.
  - Senate Bill 46 was signed into law in 2013 which created a new section of KRS Chapter 278, therefore allowing recovery of costs for purchase of power from certain biomass energy facilities and declaring the Public Service Commission approval of cost recovery to be valid for the initial term of the purchase power agreement.
- Continue to work with counties and municipalities to develop waste to energy projects.
  - DEDI staff help identify federal funding opportunities that will assist counties and municipalities to develop waste to energy projects. DEDI serves as a clearinghouse for emerging technologies suitable for Kentucky specific waste to energy projects.
  - DEDI staff have drafted a Landfill Gas to Energy Discussion paper and are working with the Department for Environmental Protection and the Department for Local Government to determine potential eligibility of facilities in Kentucky to target.
  - DEDI staff provided an article to the Energy and Environment Cabinet's publication, Land, Air and Water outlining the success of the City of Glasgow landfill gas to energy project.
- Identify funding and develop incentives that encourage the growth of renewable energy in Kentucky.
  - DEDI staff continue to encourage and coordinate information for renewable energy projects on a state and local level and research any available federal funding opportunities to assist in financing support.

### **Sustainably Grow Kentucky's Production of Biofuels**

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Kentucky currently uses only five to 10 percent of its potential biomass resources for the production of biofuels such as ethanol and biodiesel. Kentucky can significantly grow its agricultural and forestry resources in an environmentally and economically sustainable way to provide more biofuels for transportation, particularly as biofuel technologies expand in the next decade. We can thereby strengthen our energy security while growing and diversifying our agricultural and forestry economies, as well as reducing our GHG emissions. Through a concerted effort and collaboration with agricultural producers, researchers at universities, and policy makers, Kentucky can grow its biofuels industry to meet 20 percent of our current transportation fuel needs.

**Goal**--By 2025, Kentucky will derive from biofuels 12 percent of its motor fuels demand (775 million gallons per year, which represents approximately 20 percent of Kentucky's current transportation fuels demand), while continuing to produce safe, abundant, and affordable food, feed, and fiber.

As part of the ATFS, this initiative focuses on research and development (R&D) as well as deployment of commercial-scale facilities to address technical or infrastructure challenges, thereby enhancing the potential to grow the biofuels market. Kentucky will begin a statewide initiative to ensure that the needed infrastructure, human resources, research and development support, and policies are in place to enable meaningful and sustainable growth in biofuels. Current studies indicate there could be a nearly 10-fold increase in current bio-based fuels in Kentucky.

### Actions to Achieve the Goal

- The Department will promote Kentucky investment in non-food crops as a feedstock for biodiesel.
  - DEDI staff work with the state's universities and private firms to expand research and demonstration in this area.
- The Department will aggressively seek federal support for and invest in ventures that promote a market for ethanol from non-traditional feedstocks in Kentucky; especially feedstocks that do not negatively affect food prices or availability.
  - The University of Kentucky (UK) was approved in 2011 for \$6.9 million in federal funding to develop on-farm biobutanol production as part of a four year project.
  - UK has expanded their algal CO2 sequestration project at Duke Energy's East Bend facility.
  - Murray State University was awarded a USDA rural Business Opportunity Grant in 2014 to continue the development of dedicated energy crop opportunities for their region's farmers.
  - Eastern Kentucky University completed a DEDI funded research project related to biofuel production from switchgrass and woody biomass.
- The Department will encourage that Kentucky establish an escalating renewable fuel standard (RFS) for the state vehicle fleet.

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- There has been no activity in this area.
- The Department will draft and encourage that incentives be created to encourage production, distribution, and demand for biofuels in Kentucky in an environmentally sustainable manner.
  - There has been no activity in this area.
- The Department will work with both the Cabinet for Economic Development and the Governor's Office of Agricultural Policy to recruit cellulosic biofuel producers to Kentucky.
  - DEDI staff have periodic conversations with Cabinet for Economic Development and Governor's Office of Agricultural Policy staff to stay abreast of these opportunities. DEDI staff have had numerous meetings with project developers and have fostered additional discussions with other state and federal personnel

### Tactics

- Continue to address actions and recommendations made by the Biomass and Biofuels Task Force.
  - DEDI staff continue to network with various agencies, universities, and other stakeholders to promote biofuel awareness, development, and utilization.
- Conduct logistics analysis and develop model of infrastructure requirements for a biomass industry.
  - Kentucky's Statewide Wood Energy Team (SWET) will be involved in addressing logistical barriers that hinder the economic competitiveness of biomass resources for energy utilization.
- Develop legislative action that supports development of a biomass industry.
  - In 2012 legislation was passed that facilitates the establishment of "New Generation Cooperatives" as recommended by the Governor's Bioenergy and Biofuels Development Task Force.
- Initiate recruiting efforts to ensure a minimum of 100 MW of biomass-fueled power generation is added to Kentucky's energy portfolio each year from 2015 to 2025.
  - DEDI staff have attended a number of conferences and have had dialogue with several firms to identify potential sites and feedstock supplies for these projects.
  - ecoPower Generation secured a Power Purchase Agreement (PPA) with Kentucky Power for a 50+ MW biomass power facility in Perry County. The KY Public Service Commission

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approved the Power Purchase Agreement (PPA), but the decision has been appealed by the Kentucky Industrial Utility Customers.

- Initiate efforts to ensure a minimum of 50 million gallons per year of biofuels production capacity is added to Kentucky's transportation fuels portfolio each year from 2015 to 2025.
  - DEDI staff have attended a number of conferences and have had dialogue with several firms to identify potential sites and feedstock supplies for these projects.
  - An executive of Cool Planet Energy Systems attended and spoke at the Annual Meeting of the Kentucky Association for Economic Development in 2013. Cool Planet has announced plans to build commercial renewable fuel facilities in Louisiana and is looking at future opportunities in other states.
  - DEDI staff have periodic conversations with Cabinet for Economic Development and Governor's Office of Agricultural Policy staff to stay abreast of these opportunities.
- Facilitate field days in partnership with Kentucky universities to showcase emerging technologies and to improve awareness of bioenergy production and utilization opportunities.
  - DEDI staff work closely with other agencies and universities to participate in these events.
- Strengthen collaborations with state and federal agencies, private entities, and academia to enhance policies, technologies, and capital for a more robust biofuels industry.
  - DEDI staff continue to correspond with, visit, and organize opportunities of collaboration.
- Evaluate and foster opportunities to incorporate higher biofuel blends into Kentucky's fuel supply.
  - DEDI staff are working with the Kentucky Department of Agriculture and other stakeholders to develop strategies for offering E15 in Kentucky.
- Identify and support biofuels research and development initiatives that lead to commercialization of biofuels in Kentucky.
  - DEDI staff collaborates with Kentucky's research universities and industries to explore novel opportunities that will further the commercialization of Kentucky's biofuels.
  - Under the leadership of the UK CAER, Kentucky has been awarded \$20 million in Experimental Program to Stimulate Competitive Research (EPSCoR) funding from the National Science Foundation with matching funds of \$4 million from the Council on Postsecondary Education. The project's overarching goal is to discover and develop engineered bio-systems for energy, environmental and industrial applications, focusing

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on three intersecting "research pillars": Advanced Bio-Inspired Membrane Technologies, Chemical Biology for Advanced Materials, and Electrochemical Energy Storage.

### Strengthen Kentucky's Fossil Energy Industry

Energy independence and economic security are major objectives of Kentucky's energy plan and for the United States. Volatile petroleum prices beyond our control promise to rise again as the economy recovers. The United States imports 60 percent of its petroleum, often from unstable regions of the world. But, Kentucky has abundant coal resources and is the third largest coal producer in the United States. The high emissions of carbon dioxide into the environment must be addressed now, as the United States moves toward federal regulation for coal-fired power generation. Kentucky can diversify ultimate coal utilization, producing cleaner and more efficient energy for state and domestic use. Coal-to-liquid and coal-to-gas technologies can replace petroleum-based liquids and supplement domestic natural gas.

**Goal--** *Kentucky will develop its fossil energy resources to produce cost-effective alternative transportation fuels and synthetic natural gas (SNG) for delivery to the wholesale market by 2025.*

As utilities increase the use of natural gas for electricity generation, in order to comply with federal clean air regulations, both natural gas and electricity prices may increase. To hedge against these price increases we need to develop Kentucky's in-state natural gas production and produce synthetic natural gas derived from coal, both of which help us to achieve our overall objectives of economic security and energy independence. A strong coal-to-gas industry will build upon Kentucky's economic development and increase the number of jobs created by the coal-to-liquids industry.

### Actions to Achieve the Goal

- The Department will encourage Kentucky to develop alternative fuel facilities that use fossil energy resources.
  - Given the current federal environmental regulatory climate, uncertainly in national financial markets and development of shale oil and gas, any current expansion of coal-to-liquid (CTL)/ coal-to-gas (CTG) appears unlikely. DEDI will continue to monitor regulatory and market trends for CTL/CLG opportunities. Opportunities presented by unconventional oil and gas appear more promising for development in Kentucky.
- The Department will encourage expansion of research at the University of Kentucky's Center for Applied Energy Research (CAER) to achieve optimal processes for converting coal to gas under various combinations of coals and operating conditions.
  - CAER was awarded a \$164,000 grant through the coal research funding program administered by DEDI staff to study a gasification process that would convert various grades of coal to coke.

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- The Department will recommend that research at CAER should be enhanced to include the life-cycle carbon reduction potential of gasifying biomass with coal in CTG processes.
  - There has been no activity in this area.
- The Department will encourage that assessments of new natural gas resources in Kentucky be expanded and accelerated.
  - DEDI staff collaborate with Kentucky Geological Survey to evaluate new natural gas resources in Kentucky.
- The Department will seek to develop new markets for Kentucky fossil energy resources.
  - DEDI staff collaborate with Cabinet for Economic Development in identifying and supporting companies that are interesting in developing Kentucky's fossil energy resources.

### Tactics

- Promote the use of Kentucky sites previously identified as coal-to-liquids industry locations as having potential for development.
  - DEDI staff promote the Kentucky Site Bank to prospective investors in CTL facilities.
- Continue to market the incentives outlined in the Kentucky Energy Independence Act (KEIA) for the development of alternative fuel facilities.
  - DEDI staff work closely with counterparts in the Cabinet for Economic Development (CED) to identify and develop candidate KEIA companies.
- Work with Kentucky's Local Government Economic Development Fund-eligible counties to solicit and award grants for research and demonstration projects relating to clean coal and new coal technologies, including synthetic natural gas produced from coal and the development of alternative transportation fuels produced by processes that convert coal or biomass resources.
  - Annually, DEDI offers grant awards to research institutions and private companies for research and demonstration projects relating to clean coal and new coal technologies, including synthetic natural gas produced from coal and the development of alternative transportation fuels produced by processes that convert coal or biomass resources.
- Participate in the Coal Utilization Research Council (CURC) and the National Coal Council (NCC), and other avenues, continue to promote national incentives for coal-to-liquid research and demonstration projects.
  - DEDI staff regularly attend meetings of both organizations to address Kentucky issues and challenges.



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- Develop programs and award grants for the purpose of public education of coal-related issues (KRS 132.020(5)).
  - Annually, \$400K in Coal Education Grants is awarded in furtherance of this Tactic. Educational organizations in the coal fields and in the central part of the state are among current recipients.
- Continue to identify and encourage new markets for CNG vehicle conversion.
  - DEDI staff participate in the CNG Working Group with staff from the Transportation Cabinet and the Finance and Administration Cabinet. In 2013 the CNG Working Group approved and submitted to the cabinet secretaries a CNG Station and Vehicle Development Action Plan.
- Identify potential demonstration projects to increase natural gas demand and natural gas to liquid fuels proposals.
  - The CNG Station and Vehicle Development Action Plan identified potential projects to increase natural gas demand and natural gas to liquid fuels proposals. In 2014 the Transportation Cabinet award more than \$3 million in Congestion Mitigation and Air Quality (CMAQ) funding for the purpose of CNG vehicle purchase and CNG station construction in Louisville and Lexington.
- Support legislation that advances conversion of heavy vehicle and off-road diesel engines to run on liquefied or compressed natural gas, and purchase of new on-road or off-road natural gas fueled vehicles.
  - There are currently no initiatives to develop new legislation.
- Support legislation that advances SNG from CTG in Kentucky.
  - There are currently no initiatives to develop new legislation.
- Encourage the use of locally produced gas for distributed electricity generation.
  - DEDI staff meet with private companies, local community leaders and research institutions to promote the use of locally produced gas for distributed electricity generation.
- Evaluate the potential to extend natural gas service to increase demand for Kentucky produced natural gas and to reduce greenhouse gas emissions.
  - DEDI staff are recommending that Natural Gas Combined Cycle electric generating units be considered as a compliance option for reducing GHG emissions.

### **Initiate Aggressive Carbon Capture /Utilization/Storage (CCUS) Projects for Coal-Generated Electricity in Kentucky**

More than 90 percent of Kentucky's electricity is derived from coal-fired power, and we rank 13th in total carbon dioxide emissions. Carbon capture, utilization and storage (CCUS) is crucial to continued use of coal as an energy resource in Kentucky. Success of CCUS will determine our ability to meet our future energy needs. Currently, CCUS development emphasizes geologic sequestration. We need more technical options for cost-effective carbon management so that coal can be a cleaner energy resource. Of all the technologies addressed in this plan, CCUS has the greatest technological uncertainty, which is why this initiative emphasizes the need for research, demonstration, and deployment. Beyond geologic sequestration, the federal government has provided little leadership in carbon management. Kentucky must initiate its own solutions to managing carbon dioxide emissions as it diversifies its product line.

**Goal**--*By 2025, Kentucky will have evaluated and deployed technologies for carbon management, with use in 50 percent of our coal-based energy applications.*

There are unique challenges to be faced in a carbon-constrained world, given Kentucky's reliance on coal-fired power generation. The threats associated with climate change will require Kentucky to make a concerted effort to control emissions of carbon dioxide, one of the greenhouse gases, while at the same time recognizing that coal will continue to be a vital component of our energy mix. We must find ways to reduce carbon dioxide emissions and meet our energy needs for the future.

#### **Actions to Achieve the Goal**

- The Department will continue to support the work of the Carbon Management Research Group (CMRG), a consortium of Kentucky's major power companies, the University of Kentucky's Center for Applied Energy Research (CAER), and the Commonwealth of Kentucky's Energy and Environment Cabinet (EEC) should be supported. The CMRG will carry out a ten-year program of research to develop and demonstrate cost-effective and practical technologies for reducing and managing carbon dioxide emissions in existing coal-fired electric power plants.
  - DEDI staff continue to fund and serve on the advisory board to the CMRG.
- The Department will continue to investigate legal hurdles to successful CCUS and recommended legislative solutions provided to the General Assembly.
  - This area has been studied but shelved pending further activity to site a CCS facility. DEDI staff continue to participate in the Southeast Regional Carbon Sequestration Partnership which is addressing these legal issues.
- The Department will work closely with university researchers and industry partners to undertake one large-scale carbon mitigation projects to capture carbon from flue gases, and then convert system by-products to marketable commodities.
  - DEDI staff are working with the UK CAER and Duke Energy to demonstrate an Algae photo-bioreactor at Duke Energy's East Bend Coal Fired Power Plant.

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- The Department will work with stakeholders throughout the Commonwealth on research and demonstration projects and initiatives to more efficiently remove and store carbon from existing power plants.
  - The CMRG initiative provides the lead in this area.

### Tactics

- Support the Carbon Management Research Group, a public private partnership working on research to more efficiently remove carbon from existing power plants.
  - DEDI staff continue to support the Carbon Management Research Group, through grant funding and through direct participation of DEDI staff.
- Collaborate with the Kentucky Geological Survey to further characterize the geology of Kentucky and its suitability for geologic storage of captured carbon dioxide.
  - The second deep well was drilled in Eastern Kentucky in cooperation with DEDI and other stakeholders. Data continues to be characterized to discern the suitability of this geology for storage of captured carbon dioxide.
- Increase the Department's capabilities for modeling energy systems including price impacts of various energy and economic scenarios.
  - DEDI staff continue to improve its modeling capacity addressing price impacts, employment, electricity demand and economic growth.
- Evaluate the economic and technical feasibility of all low carbon electricity generation options available to Kentucky in light of federal greenhouse gas legislation.
  - DEDI staff is using its modeling capacity to evaluate options to meet future greenhouse gas emissions limitations.
- Continue to support the UK Center for Applied Energy Research (CAER) to develop the hardware and identify algal strains for sequestration of carbon dioxide.
  - DEDI staff continue to provide grant funding to CAER for the algae project. A demonstration project is underway at East Bend Power Plant in Northern Kentucky in partnership with Duke Energy.
- Support grants and incentives that enable carbon capture and storage technologies research and development in Kentucky.
  - DEDI staff support several projects through grant funding to seek to lower the cost and improve the commercial viability of carbon capture technology. Funding has been made available for CMRG, Algae projects, Eco Power Solutions, and others.

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- Identify barriers and solutions transporting carbon dioxide (CO<sub>2</sub>) by pipeline.
  - There has been no activity in this area.

### **Examine the Use of Nuclear Power for Electricity Generation in Kentucky**

With major increases in efficiency and conservation, aggressively utilizing alternative and biobased energy sources, and more effective use of cleaner coal technologies, we still will not be able to achieve the projected energy demands in 2025 along with meaningful GHG reductions. Thus, other sources of base-load electricity generation will be necessary. Many of our neighboring states are considering nuclear energy. Nuclear power production has no direct carbon dioxide emissions and is already a significant component of the global energy system. Current technologies for nuclear production are superior to the previous generation of plants, complementing an already safe industry in the United States. Improved reliability and efficiency have allowed the industry to maintain its 20 percent share of the growing U.S. electricity market. While the issue of disposal of spent fuel has not been completely resolved, progress will continue to be made to arrive at a solution that addresses the nation's needs.

**Goal--** *Nuclear power will be an important and growing component of the nation's energy mix, and Kentucky must decide whether nuclear power will become a significant part of meeting the state's energy needs by 2025.*

In a carbon constrained world, the interdependencies among energy, the environment and the economy will lead to broad sweeping economic transformations in the 21st century. To find solutions that address climate challenges, use our abundant natural resources to gain energy security, and provide the power needed to drive our economy will require pursuit of a diversified mix of energy options. In weighing the benefits and limitations of potential solutions we must be willing to fully assess and understand the societal, technical, and financial trade-offs involved. Nuclear power is one such option that deserves our full attention, as its technology and safety have significantly improved in the last three decades. It also is likely to become a national priority.

### **Actions to Achieve the Goal**

- The Department will examine legal hurdles to successful inclusion of nuclear power in Kentucky's energy mix. Specifically, removal or revision of the legislative ban on new nuclear power plants must be addressed.
  - The department followed legislation (HB52, SB67) put forward in 2013 that would have allowed the construction of nuclear power facilities but the legislation failed to pass both chambers.
- The Department will investigate the need for a public engagement plan to gather and address stakeholder feedback and concerns and to provide education about nuclear power today.
  - No action has been taken on this activity.

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- The Department will investigate the need for additional research to assess the desirability of co-locating nuclear power plants with advanced coal conversion plants to assess the effects on reducing carbon dioxide emissions, providing ready access to electricity and/or steam, and possibly using waste heat for the coal conversion process.
  - DEDI staff worked with the Idaho National Laboratory and the Next Generation Nuclear Power Alliance to complete a study that assessed the potential for New Generation Nuclear Power at two sites in Kentucky.
- The Department will investigate and catalogue incentives that reduce the risk of capitalizing and financing a new power plant that should be considered in developing these programs.
  - No action has been taken on this activity.
- The Department will work with the EEC and the Community and Technical College System to ensure that trained personnel are available to staff the construction and operation of nuclear power plants.
  - No action has been taken on this activity.

### Tactics

- Facilitate a statewide discussion of the benefits and costs of developing a nuclear generation industry in Kentucky.
  - DEDI and EEC staff continue to educate stakeholders of the benefits of nuclear generation in light of greenhouse gas emissions limits.
- Continue to support and collaborate with the Paducah Uranium Plant Asset Utilization Task Force (PUPAU). This task force is working to ensure that the Assets of the Paducah Gaseous Diffusion Plant campus will continue in productive use after the gaseous diffusion plant ceases operation.
  - The Energy and Environmental Cabinet provides PUPAU with grant support to facilitate extension of the operation of the Gaseous Diffusion plant.
- Further develop and maintain databases of energy production and consumption that is important to Kentucky.
  - DEDI staff continue to develop and maintain databases relevant to energy resources and consumption to Kentucky.
- Produce an annual Kentucky Energy Profile
  - DEDI staff continue to produce an energy profile for Kentucky.

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- Update and maintain the state energy assurance (energy emergency) plan that includes protocols for addressing energy shortages and responses to natural or man-made energy emergencies.
  - DEDI in concert with other energy stakeholders maintains an updated state energy assurance plan.
  - The Commonwealth Energy Assurance Plan (EAP) has been updated and is posted on an internal Department server accessible to all staff dedicated to emergency management in the Department for Energy Development and Independence (DEDI).
  - DEDI personnel participated in providing energy efficiency information to the Energy Resources Management Board during the 2014 propane crisis resulting from the polar vortex.
  - DEDI staff met with several partners, including Kentucky Transportation Officials, TVA and the Kentucky Propane Association, to review responsibilities during an emergency.
  - DEDI staff participated in emergency preparedness activities with the Kentucky Division of Emergency Management.
  - DEDI staff participated with the Energy Security and Infrastructure Committee of the National Association of State Energy Officials.
- Continue to participate in the Eastern Interconnection States Planning Council to evaluate the needs for interstate transmission and generation.
  - DEDI staff participated in the Eastern Interconnection States Planning Council. The Council will cease as of May 2015, but DEDI anticipates participation in the next phase of this work, as well.
- Develop an electricity portfolio model to better understand the impact of changes driven by environmental regulations, policies, or economic conditions on the Commonwealth's electricity portfolio and emissions signature.
  - DEDI staff have developed a comprehensive electricity portfolio model which informs policy makers as to impacts upon prices, resource mix and reliability of the Commonwealth's electricity system.
  - DEDI staff completed a detailed analysis on economic challenges facing Kentucky's electricity generation under greenhouse gas constraints in 2013.

### ***Department and Division Functions***

**DEDI - Office of the Commissioner** – Provides administrative, budget, contract, personnel, legislative, communication and technical support to the commissioner.

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**Division of Efficiency and Conservation** – The Division’s mission is to provide leadership to maximize the benefits of energy efficiency and conservation through awareness, technology development and partnerships. The Division has oversight in implementing energy efficiency and conservation initiatives.

### Areas of Focus:

- Oversight for planning, development and implementation of energy efficiency and conservation initiatives for the residential, commercial, industrial and transportation sectors.
- Management of the State Energy Program.
- Oversight for the development of an Energy Efficiency Resources Standard (EERS).
- Oversight for the planning, development and implementation of an energy efficiency and renewable outreach and marketing program.
- Energy Efficiency Program for State Government assistance.
- Oversight for the Renewable and Efficiency Portfolio Standard (REPS).
- Oversight for transportation energy efficiency initiatives that includes advanced electric and hybrid vehicles.

**Division of Renewable Energy** – The Division’s mission is to provide leadership to maximize the benefits of renewable energy through awareness, technology development and partnerships. The Division has oversight in implementing renewable energy initiatives.

### Areas of Focus:

- Oversight for renewable energy – primarily distributed generation at a scale of 1 MW or less. Larger scale initiatives (>1 MW) will be managed by the Division of Energy Generation, Transmission and Distribution.
- Oversight for the development of a Renewable Portfolio Standard (RPS).
- Oversight for co-products resulting from renewable energy initiatives.
- Oversight for CRERES board

**Division of Biofuels** – The Division’s mission is to provide leadership to grow Kentucky’s biofuels industry through research, development and commercialization while continuing to produce safe, abundant and affordable food, feed and fiber. The Division has oversight in implementing biofuels and biomass energy initiatives.

### Areas of Focus:

- Oversight for biofuels development and commercialization.
- Oversight for co-products resulting from biofuels energy initiatives.
- Assist in the coordination of the ATFS with Division of Fossil Energy Development.
- Collaborate with Kentucky’s agricultural industry to develop biofuels while continuing to produce safe, abundant and affordable food, feed and fiber.

**Division of Carbon Management and Data Analysis** – The Division’s mission is to provide leadership to investigate, develop and promote technical solutions for carbon capture, storage, and reuse and to engage with state, regional and federal agencies in the development of state policy designed to manage

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greenhouse gas emissions in a carbon constrained environment. The Division has oversight for carbon management initiatives.

### Areas of Focus:

- Conduct economic and modeling analyses on energy and carbon management initiatives.
- Oversight for the development and commercialization of carbon capture and storage technologies (geological, terrestrial and biological) and options for beneficial reuse of carbon emissions.
- Oversight for policy development, coordination and execution of carbon management initiatives, including the working group investigating legal issues surrounding carbon sequestration.
- Energy data collection, analysis and energy model development.

**Division of Energy Generation, Transmission and Distribution** – The Division’s mission is to provide leadership to analyze and develop policies that will ensure the generation, transmission and distribution of adequate, affordable and clean energy within the Commonwealth; to understand reliability and economic trade-offs for baseload electricity generation; to develop policies that ensure the adequate transmission of energy resources; to provide energy assurance and energy emergency management planning and to promote alternative and renewable sources for electricity generation. The Division has oversight to implement nuclear power initiatives.

### Areas of Focus:

- Oversight for policy development and coordination of existing and emerging energy generation, transmission, distribution and storage infrastructure resources. (Electric power generation, transmission lines, pipelines and storage)
- Oversight for electricity generation at 1 MW or greater from renewable resources.
- Oversight for pipeline transmission of carbon dioxide with assistance from the Division of Carbon Management.
- Oversight for policy development, coordination and implementation of nuclear energy initiatives.
- Oversight for the development of energy assurance and energy emergency plans in coordination with KY Division of Emergency Management and KY Homeland Security.



## ENERGY AND ENVIRONMENT CABINET STRATEGIC PLAN

**Division of Fossil Energy Development** – The Division’s mission is to provide leadership to maximize the benefits of Kentucky’s energy resources in a clean and sustainable manner while creating a base for strong economic growth and fostering national energy independence and security. The Division has oversight to implement fossil energy initiatives.

### Areas of Focus:

- Oversight for emerging commercial opportunities in the development of alternative transportation fuels. Managed feed stocks include coal, natural gas, waste, coal bed methane, tar sands and shale oil.
- Oversight for the Alternative Transportation Fuel Standard (ATFS) in coordination with the Division of Biofuels.
- Oversight for co-products resulting from fossil energy development initiatives.
- Oversight for expanding conventional and nonconventional natural gas development and infrastructure.
- Oversight for fossil energy research and development.

### Resources

A complete copy of *Intelligent Energy Choices for Kentucky’s Future, Kentucky’s 7-point Strategy for Energy Independence* can be found at <http://www.energy.ky.gov/NR/rdonlyres/C3E2E625-AF3C-483D-955F-99FF57D74C64/0/FinalEnergyStrategy.pdf>

The Department for Energy Development and Independence Web site can be found at <http://www.energy.ky.gov>.

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

***Goal 1—Clean Air: Protect human health and the environment by achieving and maintaining acceptable air quality.***

Implementing and maintaining programs to achieve federal and state air quality standards in the Commonwealth of Kentucky is important to the health and wellness of all citizens across the state. The amount of air pollution released into the air by industry and transportation sources is monitored using a comprehensive program involving air quality monitoring, planning, construction and operation permitting and inspections.

Kentucky currently operates an air quality monitoring network composed of 143 monitors located in 27 counties. Air monitoring stations are selected using U.S. EPA guidance and are generally established near populous areas or pollutant sources. Station locations are reviewed annually to ensure adequate air quality monitoring coverage. Data from the network is used to demonstrate compliance with ambient air quality standards and identify pollution trends. This information is also used to provide pollutant levels for daily air quality index reporting and detect elevated pollutant levels for activation of emergency control procedures.

Creating effective partnerships with air pollution sources and the public enables the department to carry out its goal of protecting human health and the environment by achieving and maintaining acceptable air quality for all Kentuckians.

**Objective 1 – Ensure programs adhere to federal and state statutory and regulatory requirements.**

**Tactic 1.1:** Attain and maintain the National Ambient Air Quality Standards.

**Measure:** The number of counties currently attaining the 2006 PM<sub>2.5</sub> standard.

**Baseline:** The number of counties originally designated nonattainment for the 2006 PM<sub>2.5</sub> standard based upon the ambient monitoring data.

**Measure:** The number of counties currently attaining the 2008 ozone standard.

**Baseline:** The number of counties originally designated nonattainment for the 2008 ozone standard based upon the ambient monitoring.

**Measure:** The number of counties currently attaining the 2010 SO<sub>2</sub> standard.

**Baseline:** The number of counties originally designated nonattainment for the 2010 SO<sub>2</sub> standard based upon the ambient monitoring data.

**Measure:** The number of counties currently attaining the 2010 NO<sub>2</sub> standard.

**Baseline:** The number of counties originally designated nonattainment for the 2010 NO<sub>2</sub> standard based upon the ambient monitoring data.

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**Measure:** The number of counties currently in attainment of the 2008 lead standard.

**Baseline:** The number of counties originally designated as nonattainment for the 2008 lead standard based on ambient monitoring data.

**Measure:** Improved visibility at Class I areas, including Mammoth Cave National Park, by EPA specified levels at interim deadlines and work toward long-range 2064 background visibility goals.

**Baseline:** 2000-2004 visibility levels.

**Action 1.1.1:** Implement federal and state control strategies for areas of Kentucky that do not meet the 2008 8-hour ozone standard (0.075ppm).

**Action 1.1.2:** Implement federal and state control strategies for areas of Kentucky that do not meet the 1-hour 2010 SO<sub>2</sub> standard (75ppb).

**Action 1.1.3:** Implement federal and state control strategies for 1-hour 2010 NO<sub>2</sub> standard (100ppb).

**Action 1.1.4:** Implement the federal programs and requirements contained in the December 2007 Regional Haze SIP.

**Action 1.1.5:** Develop and finalize re-designation requests.

**Action 1.1.6:** Monitor the infrastructure SIP for the Pb, O<sub>3</sub>, PM, NO<sub>2</sub> and SO<sub>2</sub> standard.

**Action 1.1.7:** Participate in regional modeling initiatives for ozone and visibility control strategies.

**Action 1.1.8:** Conduct education and outreach to those communities expected to be impacted by nonattainment designations.

**Action 1.1.9:** Administer SIP- approved programs implemented as part of historic control strategies.

**Action 1.1.10:** Develop required control strategy SIP as specified by the CAA and EPA guidance.

**Tactic 1.2:** Review and revise state air quality regulations and policies.

**Measure:** The number of regulatory packages developed, promulgated, and finalized in FY14.

**Baseline:** The number of FY13 packages developed, promulgated and finalized.

**Action 1.2.1:** Revise state regulations 401 KAR 51:010, 401 KAR 52:010, 401 KAR 63:002, 401 KAR 63:060, and 401 KAR 52:050.

**Action 1.2.2:** Develop regulation packages that are inclusive of stakeholder concerns.

**Tactic 1.3:** Assess source emissions annually through the Emission Inventory System.

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**Measure:** The number of sources assessed, estimated calendar year emissions, and the amount of emission fees collected during CY 2012.

**Baseline:** The number of sources assessed, estimated calendar year emissions, and the amount of emission fees collected during CY 2011

**Action 1.3.1:** Determine the sources eligible for the emission survey by the first quarter of the calendar year.

**Action 1.3.2:** Assess source emissions by third quarter of the calendar year.

**Action 1.3.3:** Assess emission fees by the fourth quarter of the calendar year.

**Action 1.3.4:** Develop projection of emission fee based on source emission assessments and needs of the division.

**Tactic 1.4:** Ensure air quality programs are fiscally and administratively viable.

**Measure:** The Division staffing levels as compared to cap, budgeted amounts, number of grant programs administered and completed, number of training programs delivered for division staff during FY14.

**Baseline:** Corresponding measures for FY13.

**Action 1.4.1:** Prepare the division budget for the fiscal year.

**Action 1.4.2:** Communicate and coordinate with DEP budget staff on the needs of the Division.

**Action 1.4.3:** Track expenditures and receipts to ensure programs are within designated budgetary amounts.

**Action 1.4.4:** Implement Cabinet and DEP operational, personnel and human resource policies and programs.

**Action 1.4.5:** Monitor staffing levels and ensure timely processing of personnel actions

**Action 1.4.6:** Educate and provide outreach to division staff on Cabinet and DEP policies.

**Action 1.4.7:** Track grants programs and ensure grant programs are meeting expectations.

**Tactic 1.5:** Ensure programs are legally sound.

**Measure:** Number and outcome of air quality litigation cases in FY14.

**Baseline:** Litigation cases in FY 2013

**Action 1.5.1:** Track and advise management of litigation at the federal and state level.

**Action 1.5.2:** Represent and advise the Division on legal matters.

**Action 1.5.3:** Coordinate with permit review staff on the legality of permit language.

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**Action 1.5.4:** Provide informational and technical resources in preparation of litigation.

**Action 1.5.5:** Prepare technical expert witnesses to testify in legal proceedings.

**Progress:** The Division continues to implement all requirements and track all measurements associated with the various NAAQS mentioned in Tactic 1.1. Implementation of federal rules and guidance on ozone and SO<sub>2</sub> for State Implementation Plans for attainment and non-attainment areas is being evaluated. All areas are in compliance with the PM<sub>2.5</sub> standard. All areas in Kentucky meet the 2010 NO<sub>2</sub> standard. In accordance with regional haze SIP and consultation requirements, the Division in June 2013 provided a Pre-Hearing Draft Kentucky Regional Haze 5-Year Periodic Report to the Federal Land Managers and also EPA for review and comment. The division continues to revise and update regulations to implement the Clean Air Act. With the completion of the FY2014 emission survey process, all source emissions have been assessed. The FY14 budget was prepared and approved by OSBD and communication continues with the department level budget staff. Tracking expenditures and monitoring personnel programs and staffing levels are on-going. All Cabinet and DEP policies are addressed with staff. Current grant programs are meeting expectations. The Division continues to review and provide technical resources to the cabinet legal division assigned to the Division for Air Quality on litigation issues.

### **Objective 2 – Ensure permits are protective of Kentucky’s air quality.**

**Tactic 2.1:** Issue appropriate, lawful permits in a timely manner.

**Measures:** The total number of permit applications received; the total number of permits issued; the total number of permits pending; the total number of permits pending that exceed regulatory timeframes; the total number of other permit actions (i.e. registrations; off-permit changes; etc.) processed; the number of new permit staff; number of trainings programs provided for permit review staff.

**Baseline:** Average of the five previous state fiscal years.

**Action 2.1.1:** Issue permitting actions that are inclusive of all federal and state requirements

**Action 2.1.2:** Issue permitting actions within the designated regulatory timeframes.

**Action 2.1.3:** Utilize TEMPO to accurately track and report on permitting actions.

**Action 2.1.4:** Evaluate and implement streamlining opportunities to address procedural and institutional inefficiencies.

**Action 2.1.5:** Recruit qualified permitting staff.

**Action 2.1.6:** Provide training to increase knowledge and enhance retention of qualified staff.

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**Tactic 2.2:** Conduct air quality modeling to assess source impacts on air quality.

**Measures:** The total number of air toxic assessments and Prevention of Significant Deterioration (PSD) modeling assessments in FY14.

**Baseline:** Modeling assessments in FY13

**Action 2.2.1:** Assess air toxic impacts as it pertains to permit requirements

**Action 2.2.2:** Assess emissions as it relates to prevention of significant deterioration.

**Tactic 2.3:** Provide technical assistance to regulated entities.

**Measures:** The total number of technical assistance activities in FY14.

**Baseline:** Baseline will be established in FY14.

**Action 2.3.1:** Assist Cabinet for Economic Development with projects that impact air quality.

**Progress:** The Division continues to process applications and issue permits. Various reports are utilized each month for tracking purposes and tools are utilized to facilitate staff in permit issuance within the regulatory timeframe. Modeling assessments are used to assess source impacts. The Division assisted with economic development projects coordinated through the Cabinet for Economic Development and assisted two companies independently relating to expansions that will have significant economic development impacts.

### Objective 3 – Monitor Kentucky’s Air Quality.

**Tactic 3.1:** Operate a statewide ambient air monitoring network.

**Measures:** The number of air monitors in the network based on population estimates; number of locations selected to represent population exposure; number of locations selected to represent background concentration levels; number of locations selected to represent regional transport of ambient air pollution; number of monitors and locations to represent source impacts; number of hours of continuous ambient air monitoring data collected; number of particulate matter; lead; and air toxics samples collected; concentrations of pollutants for which national ambient air quality standards have been established; and concentrations of pollutants for which health-based risk standards have been determined.

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**Baseline:** 2009-2013 Kentucky Electronic Data Acquisition Systems data and 2007-2012 Kentucky Air Quality System (AQS) data.

**Action 3.1.1:** Develop the ambient air monitoring network plan by July 1, 2014.

**Action 3.1.2:** Establish new monitor(s)/site(s) as required by the revised SO<sub>2</sub> and NO<sub>2</sub> NAAQS. These sites should be operational by January 1, 2014.

**Action 3.1.3:** Obtain hourly ambient air pollutant concentrations for ozone, sulfur dioxide, and oxides of nitrogen on a continuous basis using automated analyzers.

**Action 3.1.4:** Obtain hourly ambient air pollutant concentrations for particulate matter 2.5 microns in diameter or smaller (PM<sub>2.5</sub>) on a continuous basis using automated samplers.

**Action 3.1.5:** Collect 24-hour samples for particulate matter (including PM<sub>2.5</sub>, PM<sub>10</sub>, and speciated PM<sub>2.5</sub>), lead, and air toxics per the national USEPA Monitoring Schedule.

**Action 3.1.6:** Minimize data loss by ensuring that failed equipment is repaired or replaced within 5 business days after notification of instrument malfunction.

**Action 3.1.7:** Compile annual mean-concentration reports for each pollutant measured by May 1, 2014.

**Tactic 3.2:** Ensure data accuracy & integrity of the ambient air monitoring network.

**Measures:** The number of complete and current Quality Assurance Project Plans (QAPPs); number of complete and current standard operating procedures (SOPs); percentage of valid; quality-assured continuous ambient air monitoring data collected; percentage of valid; quality-assured particulate matter; lead; and air toxics samples collected; number of quality control checks performed on ambient air monitors; and number of ambient air monitoring performance evaluations conducted.

**Baseline:** EPA's 2009-2012 Kentucky Technical Systems Audit Results.

**Action 3.2.1:** Review 100% of Division's air monitoring QAPPs on an annual basis.

**Action 3.2.2:** Review 100% of Division's air monitoring SOPs on an annual basis.

**Action 3.2.3:** Develop SOPs for new methods within 6 months of start-up.

**Action 3.2.4:** Maintain 75% data recovery for each calendar quarter for all instruments within the ambient air monitoring network.

**Action 3.2.5:** Conduct quality control precision checks on each automated analyzer that collects ozone at least once every two weeks, with results within  $\pm 7\%$  difference.

**Action 3.2.6:** Conduct quality control precision checks on each automated analyzer that collects SO<sub>2</sub> and NO<sub>x</sub> data at least once every two weeks, with results within  $\pm 10\%$  difference.

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**Action 3.2.7:** Conduct quality control precision checks on each instrument that collects particulate matter samples at least once per month, with results within  $\pm 4\%$  difference.

**Tactic 3.3:** Administer the source sampling program.

**Measures:** The number of source sampling events observed; number of test protocol reviews completed; and number of test report technical reviews completed in CY14.

**Baseline:** Corresponding measures for CY 2013.

**Action 3.3.1:** Review source sampling protocols for adherence to standard test methods.

**Action 3.3.2:** Observe source sampling events to assure compliance with test protocols and permit requirements.

**Action 3.3.3:** Review source sampling test reports for adherence to standard test methods.

**Action 3.3.4:** Track source sampling activities in TEMPO.

**Action 3.3.5:** Provide technical assistance to staff on source sampling methods and activities.

**Tactic 3.4:** Assess statewide source emission impacts in Kentucky and across state boundaries.

**Measures:** The number of analyses conducted in CY14.

**Baseline:** Baseline will be established in CY14.

**Action 3.4.1:** Conduct analysis and research of statewide source emissions, impacts, and trends in Kentucky.

**Action 3.4.2:** Conduct analysis and research of Kentucky emissions and impacts on interstate air pollution.

**Action 3.4.3:** Provide technical assistance to staff on source emissions, impacts, and trends.

**Progress:** The division administered the statewide monitoring network and addressed any deficiencies identified in the annual siting evaluations and monitoring equipment was maintained to ensure quality data. The Division's SO<sub>2</sub> network meets the monitoring requirements of the revised SO<sub>2</sub> NAAQS. Air monitoring data for all continuously monitored pollutants was been entered into AQS. Tactic 3.2 was implemented by maintaining a vital quality assurance program for the Division. The source sampling program was administered by the Division and the actions in Tactic 3.3 were implemented. DAQ staff researched and analyzed particulate matter impacts across geophysical regions of Kentucky. The Division continues to compile



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information and research regarding Kentucky's emissions relating to air pollution transport and remains involved in the Kentucky Prescribed Fire Council in order to track issues relating to smoke management in Kentucky as it relates to emission impacts.

### **Objective 4 – Assure compliance and enforce air quality standards.**

**Tactic 4.1:** Inspect sources of air pollution.

**Measures:** The number of major (Title V) stationary source inspections conducted; number of conditional major (FESOP) inspections conducted; number of High Priority Violations; and compliance rate of stationary source inspections.

**Baseline:** FY 2007-2013 trends data.

**Action 4.1.1:** Complete full compliance evaluations (FCE) at all (100%) Title V major stationary sources on a biennial basis.

**Action 4.1.2:** Complete full compliance evaluations at all (100%) conditional major (FESOP) sources on a biennial basis.

**Action 4.1.3:** Complete review of 100% of annual compliance certifications for Title V major and conditional major (FESOP) sources annually.

**Action 4.1.4:** Review 100% of Field Operations Branch SOPs on an annual basis.

**Tactic 4.2:** Conduct enforcement actions regarding air quality regulations.

**Measures:** Number of days taken to initiate appropriate enforcement action on each High Priority Violation.

**Baseline:** FY 2007-2013 trends data.

**Action 4.2.1:** Initiate appropriate enforcement action on 100% of high priority violations (HPV as defined by EPA) within 60 days of discovery.

**Tactic 4.3:** Respond to air quality complaints.

**Measures:** The number of non-asbestos complaints received; number of non-asbestos complaint investigations conducted; number of open burning complaints (401 KAR 63:005); number of fugitive emission complaints (401 KAR 63:010); and odor complaints (401 KAR 53:010).

**Baseline:** FY 2007-2013 trends data.

**Action 4.3.1:** Complete complaint assessments and /or investigations for 100% of complaints received during fiscal year.

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**Tactic 4.4:** Administer the asbestos program.

**Measures:** The number of Asbestos Certification and Accreditations processed in TEMPO; number of non-complaint asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) inspections conducted; number of Asbestos Hazard Emergency Response Act (AHERA) inspections conducted; number of asbestos-related complaints received; number of asbestos-related complaint investigations conducted; number of asbestos NESHAP notifications received; and number of asbestos NESHAP notification investigations.

**Baseline:** FY 2007-2013 trends data.

**Action 4.4.1:** Review and issue certification and accreditations within the 30-day regulatory timeframe (RTF)

**Action 4.4.2:** Complete inspection of 75% of NESHAP-regulated asbestos activities within the current fiscal year for which the division has received a required notification.

**Action 4.4.3:** Complete inspection of 20% of selected AHERA local education agencies (i.e. school districts) for the current fiscal year.

**Action 4.4.4:** Complete asbestos complaint assessments and /or investigations for 100% of complaints received during fiscal year.

**Action 4.4.3:** Develop a QAPP for asbestos sampling.

**Action 4.4.4:** Develop a standard operating procedure on AHERA inspections.

**Action 4.4.5:** Develop standard operating procedures (SOP) for asbestos sampling.

**Action 4.4.6:** Develop Asbestos Certification and Accreditations in TEMPO.

**Progress:** As part of DAQ's inspection commitment to US EPA, Full Compliance Evaluations (FCEs) are completed at least once every two years at major Title V (TV) permitted air contaminant sources. EPA also requires that DAQ complete an FCE once every five (5) years at facilities with conditional major or federally enforceable state origin permits (FESOP). This tactic is still in progress with 86% of major sources with a FCE during the FY2013 interim period. Almost all Title V Sources had a FCE for 2011-2012. All conditional major\FESOP sources have met the 5-year FCE requirement. Enforcement activities are ongoing and within the required timeframes to initiate actions. The Division continues to respond to air quality complaints. The asbestos programs is ongoing and the Division conducts inspections and incident investigations.

### Objective 5 – Participate in programs that improve Kentucky's air quality.

**Tactic 5.1:** Participate in programs that reduce mobile and off road emissions.

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**Measures:** The number of programs administered, partners, and any emission reduction results for FY14.

**Baseline:** Corresponding measures for FY13.

**Action 5.1.1:** Administer the Diesel Emission Reduction Grant Program.

**Action 5.1.2:** Report annual data to the Kentucky Clean Fuels Coalition (KCFC) website for the DEP Green Fleets Program.

**Action 5.1.2:** Partner with the KCFC on initiatives such as promotion of electric vehicles, natural gas and other clean transportation fuels.

**Tactic 5.2:** Partner with other states agencies to reduce air quality emissions.

**Measures:** The number of partnerships and initiatives conducted for FY14.

**Baseline:** The number of partnerships and initiatives conducted for FY13.

**Action 5.2.1:** Coordinate with DEDI on energy-related research, training, and initiatives such as the Combined Heat and Power project.

**Action 5.2.2:** Coordinate with Finance and Administration Cabinet on Green Fleet efforts.

**Tactic 5.3:** Educate the public on Kentucky air quality issues.

**Measures:** The number of schools visited, students educated, outreach events conducted, and programs initiated and conducted in FY14.

**Baseline:** Corresponding measures for FY13

**Action 5.3.1:** Develop and conduct air quality educational programming for Kentucky's primary and secondary educational institutions.

**Action 5.3.2:** Partner with organizations on environmental education opportunities.

**Action 5.3.3:** Develop educational materials including articles for print, non-print, and social media that educates the public on air quality issues.

**Action 5.3.4:** Maintain and update the Division's website.

**Action 5.3.5:** Coordinate and conduct public events and/or exhibits that educate the public on air quality issues.

**Action 5.3.6:** Monitor and coordinate climate change information as it pertains to the Division programs and air quality education.

**Action 5.3.7:** Monitor environmental justice information as it pertains to Division programs and air quality issues.

**Tactic 5.4:** Foster networking through regional and national partnership.

**Measures:** The number of DAQ staff participating in leadership roles or as committee members in FY14.

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**Baseline:** Number of staff in leadership roles or serving as committee members in FY13.

**Action 5.4.1:** Participate in AAPCA, NAACA, ECOS, and SESARM on program and initiatives that affect the Division.

**Progress:** During this semi-annual time period, the Department was recognized as the Greenest State Government Fleet at the December 2013 awards ceremony. The Division continues to partner with KCFC on the promotion of alternative fueled vehicles and fuels. Division staff worked in concert with DEDI and the EEC Secretary's office on researching implications of greenhouse gas regulations for Kentucky's fossil fueled electricity generating units. The Division promotes idle reduction for the state fleet and designed idle reduction window clings for state fleet vehicles to raise awareness of the issue. The Division conducted outreach to various groups.

### ***Goal 2—Clean and Safe Water: To manage, protect, and enhance the quality and quantity of the Commonwealth's water resources for present and future generations through voluntary, regulatory, and educational programs.***

Kentucky has an abundance of water resources that provide important sources for public water systems, recreation and tourism, and economic opportunities. Managing and protecting the state's waters, including lakes, streams and rivers, as well as the water beneath the ground's surface, is imperative to ensure safe water for human health, the subsistence of important ecosystems, and the prospect of economic development. The department is responsible for regulating and monitoring the quality of drinking water, surface water and groundwater resources, and wastewater treatment systems across the state of Kentucky.

Effective regulatory oversight of water quality via federal and state regulations along with appropriate water quality criteria controls the amount of pollutants that can be discharged to water sources. Continuous improvement of water quality in Kentucky is achieved through permitting, compliance and inspection, monitoring, and other water quality improvement programs. Inspections of permitted facilities, in conjunction with collection and analysis of data from rivers, streams, lakes and wetlands throughout the state, enable the department to closely monitor the safety of the public's drinking water and the state's water resources.

The department not only protects the public's safety by regulating water quality, but also assists the federal government in the effort to protect Kentuckians from dam failures and flooding. Permits for construction, reconstruction, and repair of dams are issued by the department and regular inspections of dams are also conducted. The National Flood Insurance Program is administered by the department; the department also issues permits for construction on floodplains to prevent losses from flooding in Kentucky.

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Through the support of regulatory, monitoring and water quality improvement programs, Kentucky's water resources are enhanced and protected for present and future generations.

### **Objective 1 - Protect, manage and restore water resources.**

**Tactic 1.1:** Develop and Implement Total Maximum Daily loads (TMDLs).

**Measures:**

Number of impaired waters scheduled for TMDL development in FY14.  
Number of impaired waters bypassed for TMDL development in FY14.  
Number of permits that contain TMDL measures in FY14.

**Baselines:**

Number of permits that contain TMDL measures in FY13.  
Number of impaired waters bypassed for TMDL development in FY13.

**Action 1.1.1:** Implement protocols for the translation of TMDLs in permits by December 2013.

**Action 1.1.2:** Develop 50 approved TMDLs by June 2014.

**Action 1.1.3:** Explore alternatives to TMDL development through categories 4B and 5R by December 2013.

**Action 1.1.4:** Pilot a watershed through one of the alternative approaches as determined in Action 1.1.3 by April 2014.

**Action 1.1.5:** Implement requirements of HB378 (Impaired waters transparency)

**Tactic 1.2:** Implement a Nutrient Reduction Strategy.

**Measure:** Percentage of data collected and analyzed for the development of nutrient criteria in FY13-14.

**Baseline:** The FY13 inventory of existing nutrient criteria data.

**Action 1.2.1:** Continue collection and assessment of data for implementation of narrative water quality standards for nutrients while continuing to evaluate implementation of numeric criteria (nitrogen and phosphorus) for wadeable streams and reservoirs/lakes by June 2014.

**Action 1.2.2:** Finalize KY Nutrient Reduction Strategy by December 2013.

**Action 1.2.3:** Develop a public outreach approach and conduct public outreach regarding nutrients and water quality issues by December 2014.

**Action 1.2.4:** Participate in the Mississippi River/Gulf of Mexico Hypoxia Task Force and work toward implementing the Gulf Hypoxia Action Plan 2008 by June 2014.

**Action 1.2.5:** Participate and provide updates to the Kentucky Agriculture Water Quality Authority throughout the fiscal year.

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**Action 1.2.6:** Work with Groundwater Protection Council to develop a nutrient chapter for the Groundwater Report to the Nation by December 2013.

**Action 1.2.7:** Initiate Riparian Buffer promotion by December 2013. Coordinate among multiple programs and agencies.

**Progress:** The project in Action 1.1.1 has been completed. Thirty five TMDL's were completed June 2014 in Action 1.1.2. The projects in Action 1.1.3, 1.1.4, 1.2.1, 1.2.2, 1.2.3, 1.2.4, and 1.2.5 have begun and are ongoing. The project in Action 1.1.5 is ongoing and List Serve for stakeholders has been completed. The Water Health Portal projected completion date is October FY14. The project for Action 1.2.6 is inactive and the division is not actively pursuing the Riparian Buffer promotion project.

### Objective 2 – Conduct effective water resources planning

**Tactic 2.1:** Revise and update the Kentucky's Watershed Approach

**Measures:** Completion of the Watershed Framework.  
Number of partners in Center of Excellence.  
Number of Staff trained in Recovery Potential tool.

**Baseline:** 1997 Watershed Framework.

**Action 2.1.1:** Address public comments and finalize the 2013 Nonpoint Source Management Plan by December 2013.

**Action 2.1.2:** Complete draft of Watershed Framework by January 2014.

**Action 2.1.3:** Develop SOPs for assembling GIS watershed profiles for HUC 12 watersheds in Kentucky by September 2013.

**Action 2.1.4:** Prioritize watershed profiles to be developed by September 2013.

**Tactic 2.2:** Promote the EPA's Sustainable Infrastructure Initiative.

**Measures:** The number of dam safety inspections completed during the year.  
The annual number of boil water advisories.  
The number of sustainable infrastructure outreach activities completed.  
The number of projects approved that incorporated "green" methods or practices such as regionalization, conservation, water and energy expenditure of State-Owned Dam Repair (SODR) funds.

**Baseline:** The corresponding numbers from 2013.

**Action 2.2.1:** Collaborate with key stakeholders from government, industry, and community groups to use their expertise in promoting sustainable water infrastructure.

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- Action 2.2.2:** Conduct training and public outreach workshops around the state to explain the initiative to water and wastewater providers; discuss with utilities the available asset management tools; and provide them guidance on how to implement the sustainable infrastructure concepts by June 2014.
- Action 2.2.3:** Make additional revisions to the State Revolving Fund (SRF) project priority ranking systems to award more points to projects that implement sustainable concepts by August 2013.
- Action 2.2.4:** Implement SODR program strategies and projects.
- Action 2.2.5:** Educate local officials, floodplain coordinators, local emergency personnel, and emergency management on how to read inundation maps, and help them to develop Emergency Action Plans.
- Action 2.2.6:** Educate new staff members on the use of new and existing software as well as current laws and regulations.

**Tactic 2.3:** Plan for sustainable infrastructure.

- Measures:**
- The number of facility plans and asset inventories reviewed and approved.
  - The number of dam safety inspections completed during the year.
  - The number of environmental information documents reviewed and approved.
  - The number of projects approved that incorporated “green” methods or practices such as regionalization, wastewater reuse, as well as water and energy conservation.

**Baseline:** The corresponding numbers from 2013.

- Action 2.3.1:** Participate in the Area Development District Water Management Planning Council meetings to assist with planning future water infrastructure.
- Action 2.3.2:** Develop and implement a strategy to encourage wastewater systems to evaluate the applicability of using onsite and decentralized wastewater treatment systems to meet their current and future wastewater needs by June 2014.
- Action 2.3.3:** Develop and implement a strategy to encourage water and wastewater systems to plan on watershed basis to protect water quality and reduce the cost of building infrastructure by June 2014.
- Action 2.3.4:** Continue investigation of innovative uses of the drinking water SRF set-asides that support the sustainable infrastructure initiative.
- Action 2.3.5:** Evaluate and provide recommendations regarding the relationships between floodplain permitting and dam safety.
- Action 2.3.6:** Develop a water audit process for public water systems by June 2014.
- Action 2.3.7:** Complete the required inspections of dams to ensure that dams are properly maintained.

**Progress:** The projects in Action 2.1.1 and 2.1.2 have been completed. The project in Action 2.1.3 has not been completed and will need to be revised for FY15. The project in Action 2.1.4 has begun and is expected to be completed by December 2014. For Tactic 2.2, the DOW continues to promote the sustainable infrastructure initiative through collaboration with stakeholders, holding training workshops, and awarding extra priority points to green projects. The DOW has implemented Tactic 2.3, but it is too early to quantify its effectiveness.

**Objective 3 - Meet federal and state program requirements.**

**Tactic 3.1:** Meet Federal grant and work plan requirements.

**Measures:** On-time submittal of all federal grant applications, work plans and reports.  
Percentage of 106 work plan inspections conducted.  
Submittal of drinking water primacy packages with interim or final primacy granted.  
Submittal of required primacy packages.  
Number of scheduled sanitary surveys completed within the month assigned.  
Implementation of Drinking Water State Revolving Fund (DWSRF) set-asides work plans.  
Number of special appropriation projects inspected.

**Baselines:** FFY13 and FFY14 Federal Commitments.  
The number of scheduled sanitary surveys completed within the month assigned during FY13.  
The number of Special Appropriations (SPAP) inspections completed in 2013.

**Action 3.1.1:** Submit work plans, grant applications, and all reports to EPA and Federal Emergency Management Agency (FEMA) within regulatory timeframes by July 2014.

**Action 3.1.2:** Continue implementation of Performance Partnership Grant (PPG) with EPA.

**Action 3.1.3:** Develop the FFY15 106 work plan commitments by May 2014.

**Action 3.1.4:** Submit the final FFY14 106 work plan inspection commitments by July 15, 2013.

**Action 3.1.5:** Meet federal work plans, primacy requirements and applicable National Program Measures within associated federal timeframes.



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- Action 3.1.6:** Submit DWSRF set-asides work plans to EPA within the timeframe defined in the MOA and track progress made on implementing the work plans.
- Action 3.1.7:** Conduct field inspections of projects that received special appropriation grants in accordance with the federal grant work plans.
- Action 3.1.8:** Conduct field inspections of projects that received financial assistance from the state revolving fund.
- Action 3.1.9:** Conduct PAI on permitted facilities that possess the greatest potential to impact public health.
- Action 3.1.10:** Evaluate and develop a compliance rate improvement plan for inspection activities.
- Action 3.1.11:** Comply with Section 305(b) CWA requirements pertaining to monitoring and assessments and Integrated Reporting.

**Tactic 3.2:** Meet state requirements and maintain progress toward achieving and maintaining zero permit backlogs.

- Measures:**
- The total number of permits pending July 2014.
  - The total number of permits pending that exceed regulatory timeframes by July 2014.
  - The total number of “major” facilities with permit applications that exceed regulatory timeframes by July 2014.
  - The number of general permits that have expired and not been issued or that have not been addressed by July 2014.
  - The number of general permit Notices of Intent (NOIs) for which coverage has not been issued or that have not been addressed by July 2014.
  - The percentage of permit reviews completed within regulatory timeframes during SFY14.
  - The percentage of permit reviews that exceed regulatory timeframes during SFY14.
  - Employee productivity rates for permitting, data entry and scanning during SFY14.
  - The percentage of construction plan approvals issued within the regulatory timeframe for drinking water facilities.
  - The percentage of clean water construction permits issued within the regulatory timeframe.
  - The percentage of dam safety construction permits issued within the regulatory timeframe.
  - Number of coal Individual Permit (IP) and General Permit (GP) coverages issued without objection.
- Baselines:**
- The corresponding percentages from 2013.
  - The SFY13 DOW permit backlog.
  - SFY13 backlog percentages.

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SFY13 employee productivity rates.

Number of coal IP and GP coverages issued without objection on July 1, 2013.

**Action 3.2.1:** Meet regulatory timeframes on permit issuances and plan reviews.

**Action 3.2.2:** Resolve oil and gas program issues.

**Action 3.2.3:** Issue remaining expired general permits by January 2014.

**Action 3.2.4:** Provide outreach to the regulated community regarding implementation of general permits by March 2014.

**Action 3.2.5:** Issue permits for all “major” facilities that exceed the RTF by June 2014.

**Action 3.2.6:** Issue permits for all facilities that exceed the RTF by >1.5 years by September 2013.

**Action 3.2.7:** Resolve coal permitting issues with EPA using available options including: litigation regarding procedures, working with congressional and constituency interests and continued dialog with EPA, as appropriate, to resolve the issues.

**Action 3.2.8:** Meet regulatory time frames pertaining to 401 Water Quality Certifications.

**Tactic 3.3:** Implement a wastewater lab certification program.

**Measure:** The number of wastewater laboratories certified in FY14.

**Baseline:** The number of certified labs on July 1, 2013.

**Action 3.3.1:** Implement a wastewater lab certification program beginning January 2014, provided the regulation has been promulgated through the legislative process.

**Progress:** The activities in Actions 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.1.9, 3.1.10, and 3.1.11 have been completed in a timely manner. The project in Action 3.2.1 has begun. In SFY14, 338 individual permits were issued. 111 were within the RTF or 33%. There are currently 725 application reviews in progress with 361 exceeding RTF. The project in Action 3.2.2 has not yet begun. The project in Action 3.2.3 has begun with 6 general permits issued or on public notice prior to issuance (KYG05, KYG15, KYG84, KYG11, KYG4E, KYG4W). The project in Action 3.2.4 has begun, and will continue with each issuance of the general permits described in Action 3.2.3.

The project in Action 3.2.5 has begun. There are 80 major facilities that need to have a permit issued. Permits for 16 major facilities were issued in SFY2014. The project in Action 3.2.6 has begun. There are currently 168 permit actions which exceed the 1.5 year threshold.

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The project in Action 3.2.7 is nearing completion. The new Coal GPs will become effective 10/1/2014 which will allow resolution of coal permitting issues with EPA.

The project in 3.2.8 has begun however, there are no quantitative results to provide at this time. The project in Tactic 3.3 was implemented January 2014. Thirty three certifications were issued in Fiscal Year 2014.

### **Objective 4: Promote better management and communication of data.**

**Tactic 4.1:** Implement an integrated data management system for water quality data.

**Measures:** Implementation of Kentucky Water Assessment Data for Environmental Monitoring (K-WADE).

Successful data exchange with EPA via K-WADE.

**Baseline:** Level of completion on July 1, 2013.

**Action 4.1.1:** Submit data to EPA using exchange network by December 2013.

**Action 4.1.2:** Implement K-WADE Production Version with data partner access by January 2014.

**Tactic 4.2:** Maintenance of Share Point to educate the public and assist regulated entities with compliance with program requirements.

**Measures:** Maintain DOW internet site.

Implementation of DOW SharePoint/Knowledge Lake Nonpoint Source Program intranet website.

**Baseline:** Level of completion on July 1, 2013.

**Action 4.2.1:** Maintain DOW internet site with modifications made within 24 hours of request.

**Action 4.2.2:** Develop and implement SharePoint/Knowledge Lake intranet site for Nonpoint Source Program by June 2014.

**Tactic 4.3:** Promote better decision making through GIS and Data Analysis.

**Measures:** Number of staff receiving Quality Assurance (QA) training in FY14.

Number of staff receiving GIS training in FY14.

Number of Division approved SOPs for FY14.

Number of data analysis projects completed in FY14.

Number of GIS requests fulfilled in FY14.

**Baselines:** Number of Division approved SOPs for FY13.

Number of staff receiving GIS training in FY13.

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**Action 4.3.1:** Conduct training for DOW staff regarding QA and the review process by February 2014.

**Action 4.3.2:** Conduct training for DOW staff regarding GIS and ArcGIS 10.

**Action 4.3.3:** Continue systematically analyzing data from current DOW databases.

**Tactic 4.4:** Manage the Safe Drinking Water Information System (SDWIS).

**Measures:** Implementation of eMOR.  
Implementation of web-based data entry process.

**Baseline:** Level of completion on September 1, 2013.

**Action 4.4.1:** Maintain SDWIS until SDWIS Next Gen implementation.

**Action 4.4.2:** Evaluate the various avenues available for the successful development of an eMOR (such as ePortal, WRIS, SDWIS Next Gen, etc.) by June 2014.

**Action 4.4.3:** Convert Oracle forms data entry screens to a net web-based data entry process by June 2014.

**Action 4.4.4:** Participate on SDWIS Next Gen workgroups.

**Tactic 4.5:** Implement ICIS data flows and data entry via netDMR to improve permit compliance, tracking, and data analysis.

**Measures:** Implementation of permit and compliance data flows into ICIS.  
Implementation of netDMR.

**Baseline:** Status of flowing data to ICIS and entering data into netDMR on July 1, 2013.

**Action 4.5.1:** Flow permit and compliance data from TEMPO into ICIS for the coal industry and single event violations by June 2014.

**Action 4.5.2:** Continue progress toward DMR submitted via netDMR.

**Tactic 4.6:** Improve the utility of TEMPO to provide more accurate facility information data.

**Measure:** Improved accuracy demonstrated by TEMPO audit report in FY14

**Baseline:** TEMPO audit reports generated during FY13.

**Action 4.6.1:** Update work activity logs, requirements library and profiles to be reflective of regulatory changes and current processes.

**Action 4.6.2:** Provide TEMPO training to new staff to ensure they are effectively using all features of TEMPO.

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**Progress:** Action 4.1.1 is being implemented with next submittal to EPA projected for December 14. Action 4.1.2 is being implemented with projected completion of April 2015. The projects associated with Actions 4.2.1-4.2.2 will be ongoing. The project in Action 4.3.1 was completed. QA Training was conducted for 75 employees. The project in Action 4.3.3 has begun. Three QAPP's were submitted and four QAPP's were reviewed in 2014.

The project in Action 4.3.2 has not yet begun.

The projects in tactic 4.4-4.6 have moved to the Division of Environmental Program Support and progress is provided under Goal 6.

### Objective 5 – Track water-related litigation

**Tactic 5.1:** Direct and participate in any legal challenges to water quality and water resource issues.

**Measures:** Outcome of the litigation.

**Baseline:** All on-going litigation relating to water quality and water resources represented by Environmental Protection Legal Department.

**Action 5.1.1:** Provide informational and technical resources in preparation of litigation.

**Action 5.1.2:** Serve as the technical expert witness at Administrative Hearings.

**Progress:** All litigation is being tracked as outlined above.

***Goal 3—Waste Management & Land Restoration: Preserve and restore Kentucky’s land through the development and implementation of fair, equitable and effective waste management programs.***

The Department of Environmental Protection administers an array of programs to minimize contamination risks that may threaten the health, safety and environment of various life forms. These programs regulate and educate the public on issues concerning solid and hazardous waste management, site remediation at contaminated properties, underground storage tanks and recycling waste products.

Solid and hazardous wastes are managed through comprehensive permitting, registration, monitoring, reporting and training requirements. Additional methods such as promotion of solid and hazardous waste minimization, landfill inspections, public meetings and evaluation of waste streams ensure proper protection of our state’s natural resources. The department also utilizes state and federal funds to support various programs, including the Hazardous Waste Management Fund, which is funded through Hazardous Waste Assessment fees. This money is used to address environmental emergencies and to perform assessment and cleanup of abandoned contaminated sites that pose a serious threat to human health and the environment.

Assisting owners and operators with compliance of operational and maintenance requirements for underground storage tanks is a service provided by the department to prevent soil, surface water and ground water contamination. Additionally, the department provides for the abatement and control of contaminant risks associated with releases from underground storage tanks.

The department encourages public participation through various programs to protect our environment by recycling and reducing waste in order to minimize land disposal, conserving energy and natural resources. These programs educate citizens and industry in environmentally friendly practices in the proper management of solid waste and stress the significant environmental and economical benefits of reducing, reusing and recycling materials.

**Objective 1 - Provide efficient program support to DWM branches and stakeholders.**

**Tactic 1.1:** Maintain progress towards reducing and/or maintaining zero permit and data entry backlogs.

**Measures:**

- Number of hazardous waste permits pending review.
- Number of hazardous waste permits pending review that are outside of regulatory timeframes.
- Percentage of hazardous waste permit reviews completed within regulatory timeframes.
- Percentage of hazardous waste permit reviews completed outside of the regulatory timeframe.

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Number of solid waste permits pending review.

Number of solid waste permits pending review that are outside of regulatory timeframes.

Percentage of solid waste permit reviews completed within regulatory timeframes.

Percentage of solid waste permit reviews completed outside of the regulatory timeframe.

**Baseline:** The SFY04 DWM permit backlog.

**Action 1.1.1:** Obtain a zero backlog on all remaining applications beyond regulatory time frames by June 30, 2014.

**Action 1.1.2:** Maintain and enhance TEMPO reporting to accurately track and report on measures. Implement TEMPO 360 to improve efficiency.

**Action 1.1.3:** Allocate staff as necessary to assist in permit review.

**Action 1.1.4:** Evaluate and implement additional streamlining opportunities to address process and institutional inefficiencies (example: continuously evaluate business processes to identify inefficiencies and implement effective alternatives).

**Action 1.1.5:** Ensure that all permits are issued within regulatory timeframes.

**Tactic 1.2:** Ensure accurate data entry and reporting, and provide training and guidance to staff and stakeholders.

**Measures:** Number of trainings completed by DWM staff in FY14.

Number of owners/operators that complete the on-line TOOLS training in FY14.

**Baseline:** The FY13 DWM Pathlore training log.

**Action 1.2.1:** Maintain and enhance TEMPO reporting to accurately track and report on measures. Implement TEMPO 360 to improve efficiency.

**Action 1.2.2:** Allocate staff as necessary to assist with data entry.

**Action 1.2.3:** Enhance training and retention of qualified staff by providing and encouraging staff attendance in cost-effective trainings. (example: In-house CPR trainings and free online webinars).

**Action 1.2.4:** Finalize TOOLS as the program to use for Operator Certification in accordance with the federal Energy Policy Act. TOOLS will implement a site-specific approach to training and testing to support certification which will significantly aid in increased overall compliance and leak prevention.

**Action 1.2.5:** Review Standard Operating Procedures and guidance documents annually and update as necessary. Update as part of implementation of TEMPO 360.

**Action 1.2.6:** Develop and/or amend regulations for Division programs to accurately reflect programmatic policy and agency requirements

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(example: drafting regulatory amendments to changes to the annual report and the 5-year plan submitted by counties in accordance with KRS 224.43)

**Progress:** The Division of Waste Management continues to maintain a minimal permit backlog in the solid waste and hazardous waste programs. The division is in the process of upgrading TEMPO to improve data entry for the department. The division continues to review, update and create standard operating procedures and guidance documents as necessary. The division provided multiple training opportunities for staff and developed a cardiopulmonary resuscitation (CPR) training program administered by the division for all departmental employees. The Kentucky Tank Operator On-line Learning System (KY TOOLS) training program has been completed and implemented for operator certification. The division continues to develop and amend administrative regulations as necessary to reflect programmatic policy and agency requirements.

### **Objective 2 - Protect human health and enhance Kentucky's land resources.**

**Tactic 2.1:** Restore or manage contamination at sites with known or suspected releases to soil or groundwater.

**Measures:** The number of sites with known or suspected releases with potential human exposures where no further action is required or otherwise controlled as a result of implementing a management in place technique:  
Number of underground storage tank cleanups conducted that resulted in a no further action being issued and number remaining.  
Number of hazardous waste program corrective actions completed and number remaining.  
Number of historic landfills characterized, number remediated and number remaining.  
Number of illegal open dumps remediated under the Kentucky PRIDE Program and number remaining.  
Number of tire dumps remediated under the Waste Tire Trust Fund and number remaining.  
Number of State Superfund sites characterized and number remediated.  
Number of State-Lead sites remediated utilizing the Hazardous Waste Management Fund.  
Number of sites with a release of petroleum or a petroleum product remediated from a source other than a petroleum storage tank and number awaiting review.  
Number of methamphetamine contaminated properties reported and number decontaminated.



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Number of emergency or incident responses made and number of cases closed.

Number of cleanups conducted under state oversight via the Voluntary Environmental Remediation Program (see also DCA Brownfields measure).

Number of brownfield sites assessed under the Targeted Brownfield Assessment Program and number awaiting review.

Number of brownfield sites reviewed under KRS 224.01-415, number pending review, and number of concurrence letters issued.

**Baseline:** SFY04 inventory of existing sites.

**Action 2.1.1:** Maintain and enhance TEMPO reporting to accurately track and report on measures. Implement TEMPO 360 to improve efficiency.

**Action 2.1.2:** Inventory the list of sites with known or suspected contamination.

**Action 2.1.3:** Identify resource and program constraints hindering achievement of our measures; pursue program changes and request funding as necessary in budget. At a minimum, work to maintain current level of funding in cleanup programs.

**Action 2.1.4:** Prepare draft legislative agenda to address any issues requiring legislative solutions and pursue enactment. (example: Extension of Waste Tire Trust Fund in KRS 224.50-868).

**Action 2.1.5:** Develop and/or amend regulations for Division programs to expedite cleanup progress in a protective manner to human health and the environment (examples: Update HW regulations to incorporate federal rulemaking finalized through July 1, 2011 by early SFY14; Draft regulations to implement KRS 224.01-415; Update 401 KAR 100:030, regional screening levels).

**Tactic 2.2:** Encourage reduced waste generation and disposal by promoting beneficial reuse, recycling, waste minimization, and pollution prevention.

**Measures:** Tonnage of solid and special waste recycled or reused, by type.  
Tonnage of material recycled through the State Government Recycling program.

Number of waste tires used in tire-derived fuel projects, crumb rubber grants and other beneficial reuse purposes.

Tonnage of hazardous waste recycled or reused (example: mercury collection efforts).

Tonnage of waste recycled as a result of recycling grant program.

**Baseline:** SFY04 reported quantities of waste generation, disposal. SFY07 reported quantities for recycling grant program and reuse.

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- Action 2.2.1:** Maintain and enhance TEMPO reporting or other databases to accurately track and report on measures. Implement TEMPO 360 to improve efficiency.
- Action 2.2.2:** Identify resource and program constraints hindering achievement of DWM measures; pursue program changes and request funding as necessary in budget.
- Action 2.2.3:** Prepare draft legislative agenda to address any issues requiring legislative solutions and pursue enactment. (example: revision of the statute relating to waste tires).
- Action 2.2.4:** Develop and/or amend regulations for Division programs to enhance and encourage beneficial reuse and recycling in a protective manner to human health and the environment (example: development of technical requirements for defining when a “recovered material” is exempt from being a solid waste).

**Tactic 2.3:** Assure proper management and disposal of waste.

**Measures:** The compliance rates for authorized solid waste management facilities.  
The amount, by weight, of litter, open dump waste, recycled municipal solid waste and household hazardous waste collected by counties through the Kentucky Pride program.  
The compliance rates for authorized hazardous waste facilities.  
The compliance rates for registered underground storage tanks.

**Baseline:** SFY04 tonnages disposed; litter collected; compliance rates.

- Action 2.3.1:** Maintain and enhance TEMPO reporting to accurately track and report on measures. Implement TEMPO 360 to improve efficiency.
- Action 2.3.2:** Evaluate and implement streamlining opportunities to address process and institutional inefficiencies inhibiting compliance.
- Action 2.3.3:** Develop and/or amend regulations for Division programs to facilitate compliance with agency requirements (example: drafting regulatory amendments to changes to the annual report and the 5-year plan submitted by counties in accordance with KRS 224.43; review 401 KAR Chapter 49 and draft regulatory amendments as necessary)
- Action 2.3.4:** Inspect regulated sites at established intervals to facilitate and ensure compliance with agency requirements.
- Action 2.3.5:** Increase communications between permitting central office staff and field operations staff. Utilize opportunities for central office permitting staff to conduct site visits with field inspectors.
- Action 2.3.6:** Take enforcement action on regulated sites as necessary to facilitate and achieve compliance with agency requirements
- Action 2.3.7:** Finalize TOOLS as the program to use for Operator Certification in accordance with the federal Energy Policy Act. TOOLS will implement

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a site-specific approach to training and testing to support certification which will significantly aid in increased overall compliance and leak prevention.

**Tactic 2.4:** Plan, design and execute Final Closure Period activities at Maxey Flats while maintaining regulatory compliance.

**Measures:** Complete design package submitted by URS and approved by EPA.  
Documentation of sump abandonment completion.  
Modified contract completed with URS to include sump abandonment oversight and design of the final cap.

**Baseline:** Entry into the Final Closure Period, November 2012.

**Action 2.4.1:** Modify URS contract to include sump abandonment oversight and design of the final cap.

**Action 2.4.2:** Complete the design for the final cap.

**Action 2.4.3:** Complete sump abandonment.

**Progress:** The Division of Waste Management continues to remediate and restore facilities. The division continues to administer recycling grants that aid in waste minimization. Specific details on sites remediated and grants administered may be found in the following division reports for 2013: Waste Tire Program report, Hazardous Waste Management Fund report, and the Division of Waste Management Annual Report. A legislative agenda was prepared and submitted on behalf of the division. Inspection of sites regulated by the division continues to ensure compliance. Progress toward the final closure of Maxey Flats continues with commencement of construction expected during the first quarter of 2015, and project completion anticipated for the fourth quarter of 2016.

***Goal 4—Environmental Compliance: Ensure environmental compliance using a clear and consistent approach of enforcement.***

Proper enforcement stops violators from releasing illegal pollution into the air, water and onto the ground. In situations where federal and state environmental laws have been violated, enforcement ensures responsible parties are held accountable for the contamination of the environment. Responsible parties are directed to clean up contaminated property or reimburse the department for the cleanup.

The Division of Enforcement serves both compliance and enforcement functions. Through its Compliance and Operations Branch, the Division's compliance efforts focus on identifying violations, notifying the regulated entity of the violations and returning the regulated entity back to compliance through informal processes without the assessment of penalties. This is uniquely different from the responsibilities of the Civil Enforcement Branch, which focuses on addressing violations that have already been cited, following formal administrative processes to resolve the violations and routinely assessing civil penalties as a part of the resolution.

The enforcement process is conducted through referrals from either the Department's program divisions or internally from the Compliance and Operations Branch. When regulated entities fail to return to compliance through the compliance process, the referring party prepares, organizes and summarizes case-specific documentation and refers the violation to the Division of Enforcement's Civil Enforcement Branch for formal enforcement action.

**Objective 1 - Facilitate the return of regulated entities to compliance with environmental statutes and regulations.**

**Tactic 1.1:** Facilitate processes that result in the successful resolution of environmental enforcement cases.

**Measure:** The number of new cases received in the Division during the fiscal year.  
**Baseline:** From July 2005 through March 2010, the Division received an average of 34 new cases per month and an average of 408 new cases per fiscal year.

**Measure:** The number of cases closed by the Division during the fiscal year.  
**Baseline:** From July 2005 through March 2010, the Division closed an average of 37 cases per month and an average of 444 cases per fiscal year.

**Measure:** The total number of enforcement cases in the Division.  
**Baseline:** From July 2005 through March 2010, the Division had an average of 1094 open enforcement cases.

**Measure:** The number of cases open in the Division of Enforcement only for monitoring compliance with an Agreed Order or Secretary's Order.

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**Baseline:** From July 2005 through March 2010, the Division had an average of 265 enforcement cases open for monitoring and executed settlement document (Demand Letter, Agreed Order, Secretary's Order).

**Measure:** **The number of cases in the Division that are unassigned.**

**Baseline:** In January 2008, the Division had 120 unassigned enforcement cases. Data developed prior to January 2008 is incomplete.

**Measure:** **The total amount of civil penalties collected and supplemental environmental projects imposed from enforcement cases during the fiscal year.**

**Baseline:** From SFY00 through SFY09, the Division collected an average of \$1,973,903.70 in civil penalties per fiscal year.

**Measure:** The number of Agreed Orders signed by the responsible party in enforcement cases or cases otherwise resolved.

**Baseline:** From July 2005 through March 2010, the Division has received an average of 8 Agreed Orders signed by the responsible party per month and has received an average of 96 Agreed Orders signed by the responsible party per fiscal year.

**Measure:** The number of Demand Letters or Settlement Letters issued per fiscal year.

**Baseline:** The use of Demand Letters to resolve enforcement cases was reinstituted in February 2008. From February 2008 through March 2010, the Division mailed an average of 5 Demand Letters to the responsible party per month and an estimated average of 96 Demand Letters to the responsible party per fiscal year.

**Measure:** **The number of agreed orders and Administrative Orders signed by the Secretary in enforcement cases per year.**

**Baseline:** From July 2005 through May 2008, an average of 11 Agreed Orders was executed per month and an average of 132 Agreed Orders was executed per year.

**Action 1.1.1:** Maintain and update protocols and the mechanisms necessary to implement timely and effective enforcement of environmental laws.

**Action 1.1.2:** Develop staff expertise in air, waste management and water programs to allow the Division to more effectively facilitate compliance with environmental laws.

**Action 1.1.3:** Work closely with program divisions to resolve enforcement cases in a timely and effective manner.

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**Action 1.1.4:** Develop criteria and format for monthly reporting of Division activities and accomplishments to program divisions and Department and Cabinet management.

**Action 1.1.5:** Develop and implement criteria and mechanism for prioritizing enforcement cases to be referred to Cabinet attorneys for legal action.

**Tactic 1.2:** Resolve enforcement cases in a timely manner.

**Measure:** The length of time required to draft a case resolution proposal for approval once a case has been assigned to staff.

**Baseline:** The average time is 49 days to draft a case resolution proposal once a case has been assigned to staff.

**Measure:** The length of time required to hold a settlement conference after a case resolution proposal has been drafted.

**Baseline:** The average time is 82 days to hold a settlement conference after a case resolution proposal has been drafted.

**Measure:** The length of time required to reach an agreement in principle or refer a case to EPLD after a case resolution proposal has been drafted.

**Baseline:** The average time is 98 days to reach an agreement-in-principle after a case resolution proposal has been drafted, and an average of 167 days to refer a case to EPLD after a case resolution proposal has been drafted.

**Measure:** The length of time required to have the responsible party under an executed settlement document once a case has been assigned to staff.

**Baseline:** The average time is 199 days from case assignment to execution of a DEP agreed order, 143 days from case assignment to mailing of a demand letter, 523 days from case assignment to execution of an EPLD agreed order, and 582 days from case assignment to execution of a Secretary's Order. There is currently insufficient data to determine a baseline for length of time from case assignment to execution of a court decision or a consent decree.

**Measure:** The length of time required to draft an agreed order or demand letter once an agreement-in-principle has been reached.

**Baseline:** The average time is 19 days to draft an agreed order once an agreement-in-principle has been reached, and 6 day to draft a demand letter once an agreement-in-principle has been reached.

**Measure:** The length of time required to have the responsible party under an executed settlement document once a case has been assigned to staff.

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**Baseline:** The average time is 199 days from case assignment to execution of a DEP agreed order, 143 days from case assignment to mailing of a demand letter, 523 days from case assignment to execution of an EPLD agreed order, and 582 days from case assignment to execution of a Secretary's Order. There is currently insufficient data to determine a baseline for length of time from case assignment to execution of a court decision or a consent decree.

**Progress:** The Division of Enforcement continues to monitor and report on meeting these tactics. Greater detail is available in the DENF Annual Report which will be released on September 14, 2014.

DENF ended FY14 (June 1<sup>st</sup> - June 30<sup>th</sup>) with the following:

- An average of 593 per month Total Enforcement Cases;
- An average of 205 per month Cases Monitored;
- A total of 306 New Cases, an average of 26 per month;
- A total of 153 Agreements in Principle, an average of 13 per month;
- A total of 83 Agreed Orders signed by the Responsible Party, an average of 7 per month;
- A total of 98 Agreed Orders Executed, an average of 8 per month;
- A total of 52 Demand Letters issued, an average of 4 per month;
- A total of 255 Cases Closed, an average of 21 per month; and
- A total of \$1,877,826.49 in Civil Penalties collected, an average of \$156,486 per month.

### **Objective 2 – Provide assistance to Department programs by issuing and tracking compliance with letters of warning and notices of violation.**

**Tactic 2.1:** Facilitate processes for the issuance and tracking of compliance with letters of warning and notices of violation.

**Measure:** The number of letters of warning and notices of violation issued by DENF per year.

**Baseline:** From July 2006 through March 2010, the Division issued an average of 5 Letters of Warning per month and an average of 22 Notices of Violation per month. From FY05 through FY08, the Division issued an average of 60 Letters of Warning per fiscal year and an average of 264 Notices of Violation per year.

**Action 2.1.1:** Monitor and report on a yearly basis the number of letters of warning and notices of violation issued by DENF.

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**Action 2.1.2:** Work closely with program divisions to issue letters of warning and notices of violation in a timely and effective manner.

**Progress:** In FY2014, the Division of Enforcement issued 351 notifications, an average of 29 notifications per month. FY2015 Year-to-date (July 1<sup>st</sup>-July 31<sup>st</sup>), the Division of Enforcement has issued 34 notifications.



***Goal 5—Compliance Assistance and Environmental Stewardship: Promote responsible environmental stewardship.***

The Division of Compliance Assistance administers four programs: certification and licensing, brownfield redevelopment, environmental compliance assistance and environmental leadership (KY EXCEL). The division's innovative and important approach to facilitating compliance and excellence is improving the environment for all Kentuckians.

**Technical Assistance** - *DCA is a technical resource for individuals with environmental questions and needs.* Complying with a very diverse and extensive set of environmental requirements can be difficult. Even committed and experienced environmental professionals face times when they simply need help. DCA maintains a compliance assistance hotline that allows anyone to seek help with an environmental concern.

**Education** - *DCA is providing Kentucky with the knowledge it needs to care for Kentucky's environment.* In a 2008 survey, more than 3,000 entities regulated by the department were asked what impacted their ability to comply with environmental requirements. Respondents identified a lack of knowledge regarding environmental requirements as one of the greatest barriers to ensuring environmental compliance. DCA's training is equipping front-line environmental professionals with the information they need to succeed in their environmental efforts.

**Sustainability** - *DCA strives to help all of its clients recognize and implement sustainable behaviors that protect and improve Kentucky's environment.* DCA stands uniquely positioned to partner with Kentucky's corporate and private citizens to proactively build environmental values and facilitate positive behaviors throughout Kentucky. DCA is accomplishing this through partnerships, training, mentoring and technical support.

**Stewardship** - *DCA strongly believes that the future of Kentucky's environment depends on the stewardship of its citizens.* Every day, people make both large and small decisions in their homes, workplaces and communities that can benefit or harm the environment. DCA is helping these individuals become more aware of the economic and environmental benefits that result from sustainable decisions, so they can make positive choices that are environmentally beneficial.

**Objective 1 - Certify qualified environmental professionals.**

**Tactic 1.1:** Certify select environmental professionals to maximize appropriate actions and effective operations at regulated locations.

**Measure:** The number of certification licenses issued annually.

**Baseline:** In FY09 the Division of Compliance Assistance issued the following certification licenses:

|   |      |
|---|------|
| Wastewater Certifications -             | 180  |
| Wastewater Certification Renewals -     | 1068 |
| Drinking Water Certifications -         | 273  |
| Drinking Water Certification Renewals - | 273  |
| Solid Waste Certifications              | 138  |

**Action 1.1.1:** Process certification applications and administer examinations in an accurate and timely manner to ensure that individuals possess the minimum competencies necessary to properly perform their professional duties.

**Action 1.1.2:** Develop and implement a recruitment strategy that encourages individuals to consider the operator profession.

**Action 1.1.3:** Provide administrative support for the Kentucky Board of Certification of Wastewater System Operators and the Kentucky Board of Certification of Water Treatment and Distribution System Operators.

**Action 1.1.4:** Increase the program's national involvement to stay informed of operator issues, ensure the program is prepared to respond to changing needs, and influence the national policy related to certified operators.

**Progress:** The Division of Compliance Assistance continues to process and certify environmental professionals in wastewater, drinking water and solid waste operations. This fiscal year, the division issued 602 new drinking water, wastewater and solid waste licenses combined. During this fiscal year the division also issued 2,495 certification renewals to drinking water and wastewater operators.

The division continued to maintain its support of the Kentucky Boards of Certification of Wastewater System Operators and Water Treatment and Distribution System Operators. The boards reviewed a combined 433 third-party training requests resulting in the approval of 2,959.5 continuing education hours available for operators to use toward certification renewal.

The division also continued its work to locally and nationally to enhance the operator profession and encourage individuals to pursue operator careers.

**Objective 2 - Help entities comply with Kentucky's environmental requirements.**

**Tactic 2.1:** Provide quality, one-on-one assistance services that help individuals comply with environmental obligations.

**Measure:** Changes in environmental knowledge and behavior resulting from one-on-one assistance activities.

**Baseline:** In FY08, the Division of Compliance Assistance received feedback from its clients that indicated the following changes:

Client Response Activities - 72% indicated a change in knowledge  
83% indicated a behavior change

**Action 2.1.1:** Implement effective, proactive and reactive multi-media compliance assistance services with a special emphasis on small businesses and communities to enhance environmental performance.

**Action 2.1.2:** Provide ombudsman services for the public and entities regulated by the Department to ensure that department programs are appropriately implemented.

**Action 2.1.3:** Communicate the availability of compliance assistance and the benefits of the program.

**Tactic 2.2:** Implement meaningful programming that provides individuals with the knowledge needed to increase environmental compliance and performance.

**Measure:** Percent satisfaction of those entities trained and audience reached through communication tools

**Baseline:** FY12 indicators are as follows

88.5% Percent satisfaction from training evaluation  
1,611 Total number of daily unique visitors on the DCA Website  
8,666 Audience reached through DCA communication tools (SNIPS, LAW, and OCP subscribers)  
1833 of individuals trained on compliance topics (OCP and ECAP trainings)

**Action 2.2.1:** Produce and facilitate quality training that includes accurate and timely technical and regulatory information.

**Action 2.2.2:** Provide resources that clarify environmental requirements and offer technical solutions to common challenges.

**Action 2.2.3:** Establish communication tools that empower the regulated community to determine the environmental obligations that apply to

## ENERGY AND ENVIRONMENT CABINET STRATEGIC PLAN

their location and the resources that are available to make it easier for them to comply.

**Progress:** Division compliance assistance staff responded to 1,392 requests for assistance. Of those clients surveyed, 78% indicate a change in knowledge with 64% indicating that they made a positive change to improve compliance and the environment. Compliance staff trained 87 individuals resulting in an approval rating of 94%. The division also continues to prepare and issue SNIPS to educate individuals of important or upcoming regulatory changes.

The division's certification staff also provided training and assistance. They conducted 33 training events worth 486 continuing education hours. Approximately 1,300 individuals attended these training events. The division also maintained the use of its blog, Operation Matters, as a tool to educate operators on a variety of environmental and operational topics. The blog registered 40,263 views this past fiscal year.

### Objective 3 – Facilitate Environmental Stewardship

**Tactic 3.1:** Encourage environmental stewardship by making individuals more aware of the opportunities they can act on to make their communities stronger and healthier.

**Measure:** Number of entities assisted with stewardship projects and via training

**Baseline:** FY12 indicators are as follows:

10 entities assisted with stewardship projects

112 individuals trained on stewardship topics (Brownfield and KY EXCEL)

1,611 Total number of daily unique visitors on the DCA Website

10,586 Audience reached through DCA communication tools (Green DOT, Facebook, Exhibits, Presentations, and LAW)

**Action 3.1.1:** Provide quality, one-on-one assistance services that help individuals identify, plan, and implement environmental projects that are not required by Kentucky law.

**Action 3.1.2:** Offer quality environmental stewardship training to enable actions that improve Kentucky's environment and create healthier, stronger communities.

**Action 3.1.3:** Develop and compile stewardship resources in partnership with organizations, state and local agencies, nonprofit entities and other stakeholders.

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**Action 3.1.4:** Serve as a resource that encourages environmentally sustainable communities and facilitates the cleanup and beneficial reuse of brownfield properties.

**Action 3.1.5:** Establish communication tools that empower the regulated community to determine the stewardship resources that are available to increase their sustainability.

**Tactic 3.2:** Recognize and publicize voluntary actions that improve Kentucky's environment and promote environmental awareness.

**Measure:** The number of voluntary actions identified as a result of DCA programs

**Baseline:** In FY10, the number of voluntary actions observed were as follows:

|   |     |
|---|-----|
| New KY EXCEL Voluntary Projects -             | 121 |
| Environmental Stewardship Award Nominations - | 44  |
| Eco-Art Submissions -                         | 13  |

**Action 3.2.1:** Implement KY EXCEL, an environmental leadership program that recognizes entities for their voluntary commitments to improve Kentucky's environment.

**Action 3.2.2:** Administer the Department's environmental stewardship award program.

**Action 3.2.3:** Hold an annual eco-art contest for high school students.

**Action 3.2.4:** Communicate the successes of Kentucky's environmental stewards.

**Tactic 3.3:** Show the division's commitment to environmental stewardship by implementing Lead by Example projects.

**Measure:** The amount of resources utilized by the Division (DCA estimates it consumes 32% of the total building consumption)

**Baseline:** FY11 resource utilization

91 pounds of aluminum cans recycled  
153,600\_kWh of electricity used annually  
53,024 gallons of water used  
108 MCF of natural gas used

**Action 3.2.1:** Strive for zero waste at division-held training events.

**Action 3.2.2:** Efficiently use natural resources.

**Action 3.2.3:** Recycle within the office.

**Progress:** The division continues to facilitate environmental stewardship through training and promotion of voluntary environmental projects and promotion of cleanup and reuse of brownfield properties. Members of the KY EXCEL

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program voluntarily completed environmental projects across the state bringing the cumulative total of completed KY EXCEL projects to 2,551.

The Brownfield program awarded its first grants to two communities and is ready to initiate its loan program in the next few months. The division continued to administer the Eco-Art contest and facilitated the department's environmental leadership awards.

**Goal 6—Environmental Program Support: *Improve quality, efficiency and effectiveness of environmental programs and activities through innovative strategies, tools and approaches.***

The Department for Environmental Protection involves a range of activities that collectively provide support to ensure decisions made by the department are practical and consistent with the department's mission. These activities provide a foundation to achieve desired environmental benefits in the best interest of Kentucky's citizens.

Assessing the environmental status of Kentucky's air, land and water is important to determine potential threats, evaluate risks and identify solutions to protect the environment and safeguard human health. The department maintains a centralized laboratory that performs analytical sample testing of air, water and soil to determine the nature and extent of pollutants within the Commonwealth. The department also maintains a 24-hour emergency environmental response line for accidental spills and releases of toxic and hazardous material that threaten the environment. The Environmental Response Team (ERT) responds immediately to environmental emergencies and provides efficient, coordinated and effective action to minimize damage to Kentucky's environment.

Administrative support of information technology enables the department to efficiently manage data in a timely manner. Addressing the technological needs of our environmental management systems is an essential aspect of providing web-based electronic services to the public. Advancement of the department's technology and streamlining environmental response programs will provide the best possible service to Kentucky's local governments and communities.

Improvement in organizational and employee development, quality assurance and workplace safety are important areas to facilitate the accomplishment of the agency's mission and goals. Empowering employees with the tools, knowledge and skills to contribute effectively and efficiently enables employees to achieve long-term sustainable results to protect and enhance Kentucky's environment.

**COMMISSIONER'S OFFICE (CO)**

**Objective 1 – Continue to support and coordinate ongoing department-level programmatic activities.**

**Tactic 1.1:** Identify recommendations that will assist in providing the service and responsiveness required for carrying out the day-to-day activities in the Commissioner's Office.

**Measure:** Provide recommendations to the Commissioner on an ongoing basis.

**Baseline:** SFY10 department-level activities.

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- Action 1.1.1:** Coordinate e-clearinghouse and NEPA document reviews.
- Action 1.1.2:** Coordinate U.S. Army Corps of Engineers Public Notice Reviews.
- Action 1.1.3:** Coordinate review of Pollution Control Tax Exemption Certificates.
- Action 1.1.4:** In collaboration with DEPS, coordinate special projects including: Wellness Committee, Governor's Conference on the Environment, KECC, March of Dimes, and other department-wide activities.
- Action 1.1.5:** Conduct an annual review of the department Quality Management Plan and update as necessary.

**Progress:** The agency continues to coordinate reviews and respond to the requesting agency. The annual departmental QMP review was completed.

### **Objective 2 – Develop an effective strategic planning process.**

**Tactic 2.1:** Develop a Department for Environmental Protection strategic plan for SFY14.

**Measure:** DEP strategic plan development is coordinated by the Commissioner's Office staff and completed at the beginning of the state fiscal year.

**Baseline:** Strategic plans are finalized in advance of deadlines.

- Action 2.1.1:** SFY14 Strategic Plans for the Commissioner's Office and each of the six department divisions are finalized by July 31, 2013.
- Action 2.1.2:** Ensure the Department's goals and objectives are compatible with the SFY14 Department budget.
- Action 2.1.3:** Align the Department's strategic plan with Cabinet's strategic plan.
- Action 2.1.4:** Publish the mid-year status update to the Strategic Plan in December.
- Action 2.1.5:** Each division shall publish an annual report by September 15, 2013 including results of the Strategic Plan measures and actions for the previous state fiscal year.

**Tactic 2.2:** Assist staff in understanding their role in the DEP strategic plans by ensuring that employees are clear about the objectives, goals and directions of the agency.

**Tactic 2.3:** Provide input into USEPA's strategic planning processes at both the national and regional levels.

**Progress:** The department completed the Strategic and Operational Plan in July, mid-year update in December at the middle of the fiscal year, and each division published an annual report in September for the previous fiscal year ending in July.

### **DIVISION OF ENVIRONMENTAL PROGRAM SUPPORT (DEPS)**



**Objective 1 – Recruit and retain qualified employees for positions at DEP.**

**Tactic 1.1:** Continue ongoing efforts to identify resources that will assist in the hiring and retaining of qualified employees.

**Measure:** The number of new employees hired and retained on a yearly basis in critical positions.

**Baseline:** SFY12 hiring for critical positions.

**Action 1.1.1:** Work with GAPS staff to develop recommendations to present to the Personnel Cabinet to increase employee retention and recruitment (may include promotion in place options and changes to class specifications)

**Action 1.1.2:** Ensure that all divisions within the Department for Environmental Protection have adequate funding budgeted to support the DEP Scholarship Program provided through the University of Kentucky.

**Action 1.1.3:** Oversee and maintain the DEP Motor Pool.

**Action 1.1.4:** Coordinate scheduling and oversee all Safety Training for DEP employees.

**Progress:** The division continues to oversee and track personnel and human resource activities for the department. The recruitment and retention project is ongoing and expected to show quantitative results in the coming months. Currently DEP has 4 students participating in the scholarship program. New applications will be received February of 2015.

The DEP Motor Pool is an ongoing activity which consolidates the number of vehicles utilized for travel and initiates a cost savings by centralizing maintenance expenses.

The department employs ongoing safety and management training. Management training began in May but it is too early to see quantitative results. Evaluation of the trainings and other program changes may result in an addition to the existing training provided.

**Objective 2 – Provide technical, personnel and administrative support for DEP IT-Based Systems (TEMPO/SDWIS/K-WADE).**

**Tactic 2.1:** Produce monthly TEMPO Reports for DEP Commissioner's Office that are timely and accurate.

**Measure:** Monthly submission of reports to the Commissioner's Office.

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**Baseline:** Monthly Reports submitted.

**Action 2.1.1** Train appropriate Division staff to produce and format reports.

**Action 2.1.2** Designate and train appropriate Division staff for back up.

**Action 2.1.3** Hire additional contractors to assist in performing the architecting and programming functions as outlined in existing DEP grants.

**Tactic 2.2:** Provide TEMPO/ SDWIS/K-WADE Database Support.

**Measure:** Successful completion of tasks on IT Project List in FY14.

**Baseline:** July 2013 IT Updated Project List.

**Action 2.2.1:** Completion of requested reporting modules.

**Action 2.2.2:** Provide technical support as the Kentucky Water Assessment Data for Environmental Monitoring (K-WADE) system is developed to replace the Ecological Data Application System (EDAS).

**Action 2.2.3:** Provide timely TEMPO Help Desk Support.

**Action 2.2.4:** Create web-based enhancements for TEMPO, including online permit applications and license/certification renewals in accordance with allocated SFY14 budget.

**Action 2.2.5:** Adhere to Federal Database Guidelines and modifications for the Safe Drinking Water Information System (SDWIS)

**Tactic 2.3:** Meet goals of USEPA grant-based projects on time and on budget.

**Measure:** Successful completion of funded projects in FY14.

**Baseline:** Submission and acceptance of semi-annual and annual reports to and by USEPA.

**Action 2.3.1:** Complete "CROMERR" Exchange Network grant project as noted in project plan.

**Action 2.3.2:** Complete "TEMPO Modernization" Exchange Network grant project as noted in the project plan.

**Progress:** DEPS created a new reports tool with functionality that will automatically send reports to relevant users, including management. We conducted training for departmental staff and created videos to explain how to run reports. DEPS has hired a contractor to support the reports tool.

DEPS IMB IT staff have completed 1976 helpdesk requests in the first two quarters of 2014. The DEPS IMB IT section, in conjunction with the Commonwealth Office of Technology, set-up K-WADE on a production database server and on a web application server. DEPS IMB IT staff migrated all reference table data into K-WADE production database. DEPS IMB IT staff

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migrated primary and rotating Ambient Surface Water Monitoring data, from April 2013 through March 2014, into the K-WADE production database.

Kentucky DEP's CROMERR Grant application was approved by EPA. We have hired a new contractor to build our CROMERR solution.

### **Objective 3 – Continue to Support and Coordinate Ongoing Programmatic Activities.**

**Tactic 3.1:** Identify recommendations that will assist in providing the service and responsiveness required for carrying out the day-to-day activities in the DEPS.

**Measure:** Activities performed and coordinated in SFY14.

**Baseline:** SFY13 activities performed by staff in the DEPS. (IT activities are identified in Objective 2 above.)

**Action 3.1.1:** Coordinate the activities of the Environmental Response Team (ERT) to effectively respond to environmental incidents.

**Action 3.1.2:** Develop and maintain a Department Continuity of Operations Plan (COOP).

**Action 3.1.3:** Coordinate training for all ERT On-Scene Coordinators

**Action 3.1.4:** Coordinate all DEP facilities issues including maintenance, department services (phone, janitorial, trash, security, internal/external mail delivery, postage for field offices, uniforms, safety shoes, vehicle motor pool and inventory), and office relocations.

**Action 3.1.5:** Coordinate DEP budgetary activities including submission of annual and biennial operating budgets, contractor furlough savings, and fiscal year close-out.

**Action 3.1.6:** Review and develop Memoranda of Agreement (MOAs) and Personal Service Contracts (PSCs) including those for medical monitoring, and OSHA training for all applicable DEP employees.

**Action 3.1.7:** Coordinate personnel activities including the DEP scholarship program, EEO/ADA and Title VI activities.

**Action 3.1.8:** Work with cabinet staff as required to ensure that all IT software licenses are kept current and/or retained under the realm of COT due to the recent reorganization.

**Action 3.1.9:** Provide technical advice concerning appropriate laboratory analytical methods and techniques.

**Progress:** ERT staff actively continues to coordinate the activities of all environmental incidents for DEP. ERT staff has drafted the Department Continuity of

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Operations Plan (COOP) and is going to submit it to upper management for review. ERT staff continues to coordinate training for all ERT on-Scene Coordinators for DEP. DEPS staffs continue to coordinate all DEP facilities issues.

The department submitted FY15 operating budgets and year-end closing packages in the allotted timeframes. Quarterly contract workers reports were submitted as required by HB 387.

Personal Service contracts and MOA's were developed as necessary including those for department wide training events and software maintenance. The DEPS Personnel Administrator continues to coordinate personnel activities and functions.

### **Objective 4 – Provide accurate and defensible chemical analytical services to the program divisions of the Department for Environmental Protection.**

**Tactic 4.1:** Analyze environmental samples collected by the Water and Waste Management divisions for chemical constituents.

**Measure:** The number of environmental samples analyzed each year.

**Baseline:** In calendar year 2012, there were 4930 samples analyzed by the Environmental Services laboratory.

**Action 4.1.1:** Provide testing services for samples in accordance with the allocated SFY14 budget.

**Action 4.1.2:** Maintain an average turn-around-time of less than 28 days for samples submitted beyond July 1<sup>st</sup>, 2013. In 2012, the average turn-around-time for all samples was 24.7 days.

**Measure:** The number of individual tests performed by the Environmental Services laboratory.

**Baseline:** In calendar year 2012, there were 40,117 individual tests performed by the Environmental Services laboratory.

**Action 4.1.3:** Provide individual testing services in accordance with the allocated SFY14 budget.

**Measure:** The number of individual chemical parameters reported by the Environmental Services laboratory.

**Baseline:** In 2012, there were 249,905 individual chemical parameters reported by the Environmental Services laboratory.

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**Action 4.1.4:** Provide chemical parameter reporting to meet department needs.

**Tactic 4.2:** Maintain accreditation by USEPA and the National Environmental Laboratory Accreditation Program (NELAP).

**Measure:** Accreditation status of the Environmental Services laboratory.

**Baseline:** Currently, the laboratory is certified as the State Principal Laboratory for Drinking Water by USEPA. In July 2007, the New Hampshire Department of Environmental Services granted the laboratory NELAP accreditation. Continuing accreditation status is dependent on successful ongoing participation in the NELAP program.

**Action 4.2.1:** Participate in a minimum of 2 Proficiency Testing (PT) studies approximately 6 months apart.

**Action 4.2.2:** Pass 2 out of the last 3 consecutive studies to maintain accreditation for various analytical methods.

**Action 4.2.3:** Secure funding that will pay for the fees so that accreditation can be maintained.

**Action 4.2.4:** Review Environmental Services Laboratory analytical and administrative SOPs and Laboratory Operations and Quality Assurance Manual (LOQAM) annually and update as necessary.

**Tactic 4.3:** Upgrade the analytical instrument base of the Environmental Services laboratory.

**Measure:** The analytical capacity and dollar value of new and replacement instrumentation.

**Baseline:** The Environmental Services lab maintains a major analytical instrument inventory with a baseline dollar value in excess of \$2 million.

**Action 4.3.1:** Secure additional funding that will allow replacement of old or outdated equipment and instruments.

**Action 4.3.2:** Secure additional funding that will allow purchase of equipment that utilizes new technologies to meet the department's changing program needs.

**Progress:** The Environmental Services Branch Laboratory (ESB) continues to provide quality and efficient chemical testing for the divisions within the Department for Environmental Protection in accordance with the allocated SFY14 budget funds.

ESB is on target in all areas of proficiency and is current on all scheduled testing requirements as mandated by the USEPA Safe Drinking Water

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Program and the National Environmental Laboratory Accreditation Program requirements.

ESB continued to maintain a turn-around-time less than 28 days in SFY14.

ESB is in the process of purchasing 3 replacement instruments estimated at at approximately \$130,000.

### **Objective 5 – Provide adequate training to DEP employees.**

**Tactic 5.1:** The goal of the Department for Environmental Protection (DEP) is to provide the best, cost-effective services to the citizens of the Commonwealth. This goal is to be achieved by maintaining a qualified and healthy workforce.

**Measure:** The number of formalized training events sponsored by DEP in FY14.

**Baseline:** The baseline will be the number of training events sponsored by DEP in SFY13.

**Action 5.1.1:** Coordinate the scheduling with USEPA of the Basic Inspector Training Course to ensure that the content is appropriate and current.

**Action 5.1.2:** Offer the DEP New Employee Orientation program on a monthly basis to all new DEP employees and maintain the manual (and PowerPoint presentation) to ensure that the content is appropriate and current.

**Action 5.1.3:** Assist the DEP Commissioner's Office with scheduling and oversight of all Safety Training for DEP employees.

**Action 5.1.4:** Coordinate scheduling of Cabinet (GAPS) mandatory Supervisor's Training program (includes training on employee relations, enforcement of state/cabinet/department-level policies, etc.)

**Action 5.1.5:** Assist the Divisions in identification of specialized training needs and provide approval and support for the training.

**Action 5.1.6:** Coordinate DEP employee participation in the Commonwealth's Wellness Coalition Program, the Humana Vitality Program, and KECC activities.

**Action 5.1.7:** Partner with agencies and organizations outside DEP to provide environmental awareness training (including but not limited to Earth Day, Governor's Conference on the Environment, and Kentucky Recycling Interest Group).

**Progress:** DEP New Employee Orientation presentations will resume in September of 2014. All new DEP employees have attended cabinet new employee orientation and/or reviewed material associated with the DEP orientation program and returned new employee paperwork.

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DEPARTMENT FOR NATURAL RESOURCES

**DNR GOAL 1. Ensure natural resources development activities such as agriculture, oil and gas drilling, logging and mining are done in an environmentally responsible manner.**

Any activity that disturbs the land surface has the potential to allow increased runoff of sediment-laden water into nearby streams. Many of the regulations enforced by the Department for Natural Resources are designed to stabilize the land surface during natural resources development and keep sediment and contaminants from leaving and causing an off site impact to Kentucky's waterways. Kentucky's natural resources regulations also require mining and drilling operators to take measures that protect groundwater resources. Kentucky's Abandoned Mine Lands (AML) program, which is funded by federal surcharges on coal production, designs and constructs projects to remediate damage caused to land and water by surface and underground mining operations that took place before the protections of the Surface Mining Control and Reclamation Act of 1977 took effect.

DNR takes its responsibility to protect Kentucky's surface and groundwater very seriously. Recent revisions to the Cumulative Hydrologic Impact Analysis (CHIA) process have improved the capability of DNR to identify watersheds where coal mining may significantly impact ground water and surface water resources.

Finally, particularly in this time of reduced resources, it's important to recognize the contribution of citizens to the enforcement efforts of the Department. DNR personnel aren't always present on agricultural, logging, mining and drilling operations, thus, the assistance of local citizens in alerting various DNR agencies to potential problems while they are correctable is invaluable.

**Objective 1 – Ensure that requirements of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) and the Clean Water Act (CWA), as it applies to mining operations, are met for all Kentucky mining operations.**

**Tactic 1.1:** Complete a thorough review of surface mine permit applications within regulatory timeframes. Hire and train additional technical reviewers and engineers to accomplish this tactic.

**Performance measure:** Percent of mine permitting decisions (issued/denied) made within regulatory timeframes.

**Tactic 1.2:** Implement new bonding protocols to comply with the 733 directive.

**Performance measure:** Track mid-term and renewal progress and amount of supplemental bond obtained.

**Tactic 1.3:** Comply with regulatory requirements for inspection frequency of coal mine permits, while also remaining responsive to Citizen's Requests for Inspection.

**Performance measure:** Percent of inspectable units that are inspected in accordance with federal and state frequency requirements; percent of timely responses to

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citizens' requests within state guidelines, while keeping backlog of unresolved citizens' request to a minimum. Goal is to file an initial response to citizens' requests within 5 working days.

**Tactic 1.4:** Maintain sufficient inspector positions in the Division of Mine Reclamation and Enforcement to ensure completion of Tactic 1.3

**Tactic 1.5:** Perform regular updates of watershed GIS datasets (mining history, water quality data, georeferenced permit boundaries) for use in the CHIA of proposed mining operations.

**Tactic 1.6:** DMRE Inspectors assist trend station monitoring. Obtain sufficient funding to continue trend station monitoring in the future.

**Performance measure:** Number of watersheds in which new CHIA protocol can be implemented; number of DMR documents entered into SMIS; number of trend stations monitored by DMRE inspectors.

### Progress:

The Division of Mine Permits (DMP) is challenged with maintaining a balancing act between quality and consistency in review of permit applications while meeting mandated regulatory timeframes for issuance. For FY14 DMP issued 726 permits (71 new, 81 amendments, 58 major revisions, 516 minor revisions). Additionally, the mid-term review function was expanded in order to address quality control and the requirements of recent Reclamation Advisory Memorandums (RAM). During FY14, 48 minor revisions were processed for full cost bonding.

For FY2014, the Division of Mine Reclamation and Enforcement (DMRE) inspected 99% of the inspectable units (1748) in accordance with federal and state frequency requirements but did not meet the required 100% threshold.

The CHIA (Cumulative Hydrologic Impact Assessment) process, a critical part of the coal permitting action, is a continuing activity that currently administers water quality, benthic, and impact data for 367 watersheds. CHIA interns completed 367 watershed HUC-12 characterizations, and entered more than 93,000 Discharge Monitoring Reports and 136,000 surface and groundwater baseline and water monitoring reports into the Surface Mine Information System (SMIS).

132 trend stations were established and are monitored by DMRE inspectors who collect water samples every three months. Inspectors conducted four quarters of water sampling at 64 trend stations and an additional 72 trend stations were sampled for three quarters. Sampling at all 132 stations has been conducted since 2012. Funding for the sampling program has been made available through 2017. At each station, field data are recorded (air/water temperatures, pH, conductivity and stream flow) and the water column sampled for a complete metals analysis. Each report becomes part of a specific watershed dataset to be used for future cumulative hydrologic assessments. These reports represent over 1.5 million data points entered into SMIS allowing water quality data to be sorted in a variety of ways for use by internal staff and the regulated public.

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These 367 watersheds are hydrologic unit code (HUC) 12 geographic areas and cover the entire coal mining extents for the commonwealth, including both east and west coal fields. Each set of data collected is held in a directory specific to that watershed. Each directory contains the following data:

- KPDES point descriptive information (Excel)
- Groundwater quality results data from SMIS (Excel)
- Surface water quality results data from SMIS (Excel)
- STORET water quality results data (Excel) prior to 2011 – static dataset
- KGS groundwater quality results (Excel) – obtained from DOW
- A record of prior violations
- A comprehensive mine history report for existing permits
- A report of current pending permits
- A Microsoft Access forms driven WQ results data viewer pre-loaded with the specific watershed's available results tables.
- Benthic data for mHBI, mEPT, and MBI extracted from DOW's EDAS database.

Each watershed's collection of data is compressed into a ZIP format and posted to the website for download by the public at no charge.

As new mining extends into additional HUC12 watersheds that may not be currently characterized by the CHIA process, these watersheds are added to the collection and all available data is collected. New watersheds are then included as part of the periodic update activity.

The 367 HUC12 watershed datasets described above automatically become part of a strictly regulated update process and are classified according to the presence of active mining. The CHIA watershed dataset packages are updated monthly for all watersheds.

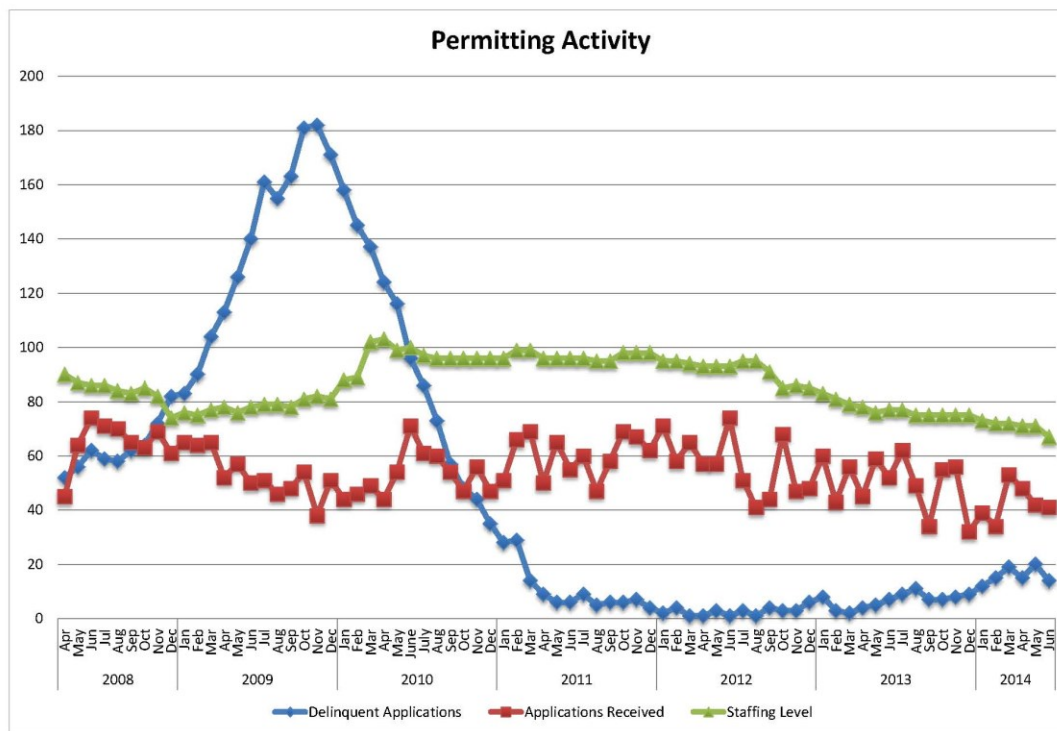
DMP has developed a Microsoft Access scheduling program that is checked by update staff on a daily basis. As DOW updates its KPDES, 305(b), 303(d) and benthic data, and as Kentucky Geological Survey (KGS) and SMIS water quality records are added, the new maps, spreadsheets, histories, and viewer table data is included in the updated collection, which is compressed into a ZIP format and stored on the server for download by the public, overwriting any previous compressed versions. DMP is awaiting the rollout of DOW's KWADE database which will afford ready access to a variety of updated benthic and other data. When access to KWADE is available, DMP will adjust its CHIA collection and update procedures accordingly to make use of the latest and best datasets.

### CHIA watershed reports

Prior to issuing a new or amended permit, a CHIA watershed report is prepared using the datasets. The report summarizes water quality in the watershed, mining history, surface and ground water quality, and potential impacts due to the proposed mining; and compares

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baseline water quality data in the application against watershed-wide trends. The reports may result in a permit application being referred to a branch manager or the Director, who may assign additional review; or may be recommended for issuance.



Note: Applications Received is the number received for the entire month.

### Objective 2 – Encourage citizen participation in coal mine permitting and enforcement processes.

**Tactic 2.1:** Make citizens aware of their right to request a permit conference prior to permit issuance and to request inspections of surface mining sites after the permit is issued; provide outreach material for citizens who file Citizen's Request for Inspections (DMP, DMRE).

**Tactic 2.2:** Maintain dialogue with citizens groups and continue to meet with them on areas of concern they may have with DNR regulatory programs.

#### Progress:

The DNR Commissioner and staff from DMRE and DMP met routinely during FY 13 and FY 14 with environmental groups to listen to their concerns. Extensive outreach material, accessible on the department's web site, was updated in a timely manner and plans are being developed to add more

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data requested by interested groups. Protests, complaints, and requests for permit conferences were fully integrated into an electronic process for review by the staff of the Division of Mine Permits. Form templates for these services were placed online for use by the public and are easily crafted with a click of a button. All correspondence and documentation received are promptly scanned into DocTree and immediately verified. Integrating protests, complaints, and permit conferences into an electronic process has allowed the Division of Mine Permits to track the paperwork more accurately and greatly reduce the chance of issuing a permit with an unresolved protest.

For FY2014, 506 citizen requests for inspections (CRI) were filed with DMRE with an average initial response of 10 days. This is an improvement over FY2012 with 563 citizen complaints and an average response time of 14 days. The backlog of CRI's pending in the division has been greatly reduced during the fiscal year. The goal with respect to responding to citizen complaints is to complete the initial response to citizen's requests within 5 working days.

### **Objective 3 – Ensure that commercial timber harvests employ measures to protect water quality.**

**Tactic 3.1:** Loggers and operators are required to use appropriate best management practices to protect water quality and to have a master logger on site and in charge of the harvest. The Division of Forestry inspects for compliance.

**Performance measure:** Number of commercial timber harvesting operations inspected; number of harvest sites in compliance; number of operators designated a bad actor.

**Tactic 3.2:** Promote remediation of impacted logging sites and reduction of bad logging practices by allowing loggers deemed as bad actors to be removed from the bad actor list upon remediation of sites, payment of all assessed civil penalties, and demonstrated compliance. Make bad actors aware of the conditions under which they can have their bad-actor designation removed.

**Performance measure:** Percentage of impacted sites and acreage remediated; number of bad actors removed from bad actor list.

#### Progress:

The Best Management Practices Board overseeing logging operations state-wide did not propose any changes in the last year to current forestry best management protocols or penalties. No legislation was introduced in the 2014 session of the Kentucky General Assembly regarding logging and water quality.

The division performed 2,486 inspections on commercial harvest operations, issuing 362 written warnings for water quality violations. Fifteen emergency orders were issued for serious best management practices violations, (10) no Master Logger on site, and five for a combination of serious violations and no Master Logger on site.

Forty eight new bad actor designations were made. Nine bad actor designations were removed during the past biennium.

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The division conducted sixteen 3-day Kentucky Master Logger programs with 300 graduates. The requirement to have a Master Logger on site during harvesting has significantly reduced the incidents of water quality violations.

**Objective 4 – Reduce residual impacts from pre-SMCRA mining by using the additional grant funds from 2006 SMCRA Amendments to increase the number of AML reclamation projects, AMD projects, and water supply projects.**

**Tactic 4.1:** Expend additional funds to fund more and/or larger AML reclamation projects.

**Performance measure:** Number of sites and acres reclaimed.

**Tactic 4.2:** Improve water quality in the coalfields by using AMD set aside funds for AMD abatement in affected streams.

**Performance measure:** Length of streams with improved quality.

**Tactic 4.3:** Increase the number of citizens receiving potable drinking water in the coalfields by funding water supply extensions into areas where abandoned mining has affected the groundwater.

**Performance measure:** Number of citizens receiving potable water as a direct result of AML projects.

### Progress:

For Fiscal Year 2014 the Division of Abandoned Mine Lands received a total grant of \$42,428,406.00. A total of \$3,000,000.00 was set aside for acid mine drainage projects in FY 2014.

**Objective 5 - Evaluate the current Division of Oil and Gas regulatory program to ensure it is adequate to prevent waste, is protective of the mineral owners, whose properties are adjacent to active operations, and is stringent enough to protect the environment, while encouraging responsible development and compliant production of crude oil and natural gas resources.**

**Tactic 5.1:** Division of Oil and Gas continues to pursue primacy from USEPA UIC-Class II injection wells for the underground sources of drinking water in the commonwealth. Class II injection wells are primarily installed for enhanced oil recovery and to a lesser extent the disposal of brine (salty) water.

**Performance measure:** Continue to work with USEPA representatives to achieve primacy of the Class II program by the end of fiscal year 2016.

**Tactic 5.2:** DOG increases staffing by 5 positions to provide regulatory enforcement and oversight of Class II-UIC program and to meet current permit review and inspection workloads.

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**Performance measure:** Number of permits issued and inspections completed.

**Tactic 5.3:** DOG solicits input from DMRE and produces guidance material, complete with case studies and examples, to educate oil and gas drillers and operators as to the adverse environmental impacts caused by oil and gas drilling activities on surface disturbance permits.

**Performance measure:** Guidance material available on the DOG website.

### Progress:

The Division of Oil and Gas is continuing its pursuit of primacy of Class II Underground Injection Control wells under Section 1425 of the Safe Drinking Water Act from the USEPA. Division staff has worked closely with USEPA Region 4 representatives on a number of program description submissions in order to achieve a complete package with all EPA requirements. According to USEPA Region 4, the division is scheduled to receive primacy in 2015.

Once primacy has been granted by the USEPA, the Division will receive a federal grant to assist with the implementation and administration of the Class II program. The Division plans to use this grant money to increase its staff levels.

During the 2014 legislative session, the Division was charged with updating the Well Operator's Manual funded by a \$50,000 two year allocation. The Division will be forming a manual workgroup comprised of DNR and DEP personnel to incorporate any necessary changes. The manual will be a tool to inform the regulated community and general public of the cabinet's regulations and best management practices. This manual is made available at no cost on the Division's website.

**Objective 6 –The Office of Reclamation Guaranty Fund was established by the 2013 General Assembly (House Bill 66) to provide additional revenue to reclaim coal mine permits in the event of bond forfeiture. In addition, the fund will continue to subsidize bonds for permits belonging to members of the former Kentucky Bond Pool.**

**Tactic 6.1:** Complete initial capitalization fee implementation of the Kentucky Reclamation Guaranty Fund (KRGF) by assessing membership and active acre fees to all permittees in the state as of July 1, 2013.

**Performance Measure:** Collection of initial capitalization fees to create additional revenue for the KRGF.

**Tactic 6.2:** Create a system for reporting and collecting tonnage and dormant/non-production fees to maintain the solvency of the KRGF.

**Performance Measure:** Collect tonnage and dormant/non-production fees on a quarterly basis.

**Tactic 6.3:** Continue to provide bond subsidies to the former Kentucky Bond Pool.

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**Performance Measure:** Tabulate the number of bonds and bond amounts issued to permits belonging to members of the former Kentucky Bond Pool.

### Progress:

On March 22, 2013 Governor Beshear signed House Bill 66 (KRS Chapter 350.500-350.521) into law, which established the Kentucky Reclamation Guaranty Fund (KRGF). KRGF is a mandatory reclamation account designed to cover the costs of reclamation to the Cabinet for forfeited coal mining sites when permit specific bond is inadequate. HB66 also established the KRGF Commission, which is comprised of seven members appointed by the Governor. The Commission is responsible for reviewing, recommending and promulgating regulations necessary to: 1.) monitor and maintain the fund, 2.) establish a structure for processing claims and making payments. 3.) establish the mechanisms to review the viability of the fund, 4.) set a schedule for penalties for late payment or failure to pay fees and assessments, 5.) review and assign classification of mine types and 6.) establish a structure for the payment of fees and assessments.

HB66 also established the Office of Reclamation Guaranty Fund (ORGF), which is administratively attached to Department for Natural Resources. ORGF provides support to the Commission and performs essential functions such as collecting fees, compiling information for assignment or revising permit classification, and contracting for audit and actuarial services. ORGF filed new regulations under KRS Chapter 350.500-350.521 on July 3, 2013. They consisted of: 1.) 405 KAR 10:070E Kentucky Reclamation Guaranty Fund, 2.) 405 KAR 10:080E Full Cost Bonding and 3.) 405 KAR 10:090E Production Fees. Additionally revised versions of 405 KAR 8:010, 10:001 and 10:015 were filed.

KRGF was initially funded by the assets of the former voluntary bond pool. A one-time fee was assessed to all permittees with effective permits as of July 1, 2013 in the amount of \$1,500/permittee. An additional \$10/active acre fee was assessed on permitted bonded acreage. Former members of the voluntary bond pool were not assessed any start-up fees.

During Fiscal Year 14, the ORGF received \$2,253,033 in revenue as a result of the assessment of initial capitalization membership and active acre fees for mining permits, as follows:

|   |             |
|---|-------------|
| New Membership Fees (\$10,000/New Company)        | \$230,000   |
| Initial Membership Fees (\$1500/Existing Company) | \$377,090   |
| Active Acre Fees (\$10/Active Bonded Acre)        | \$1,631,920 |
| Late Payment Fees (10%/\$100 Minimum)             | \$14,023    |

During Fiscal Year 14, the ORGF received \$1,090,414 in revenue from the assessment of annual classification fees for mining permits, as follows:

|  |           |
|--|-----------|
| Surface Operations (\$0.0757/ton)              | \$360,804 |
| Underground Operations (0.0357/ton)            | \$160,007 |
| Combined Operations (Predominant Tonnage Rate) | \$81,702  |
| Non-Production Operations (\$10/Bonded Acre)   | \$131,705 |
| Dormant Operations (\$6/Bonded Acre)           | \$218,320 |
| Former Kentucky Bond Pool Tonnage Fees         | \$137,877 |

For Fiscal Year 2014, the ORGF issued 212 bonds covering 6,396 acres for 69 permits in the total amount of \$21,640,600.



**DNR GOAL 2. Support statewide efforts to develop alternate energy sources and carbon sequestration opportunities.**

Nearly 50% of the future demands for biomass in Kentucky is expected to come from forest resources, but Kentucky's forests are not ready to supply such a demand for woody biomass. The Commonwealth has more than 467,000 private forest landowners, many of whom will require assistance from the Division of Forestry to develop forest management plans that will enable production of woody biomass efficiently and sustainably. Similarly, landowners who choose to grow switchgrass for energy generation will need the assistance and expertise of Division of Conservation and its 121 Conservation Districts to assist with the development of agriculture water quality plans and procurement of funding for best management practices.

**Objective 1 –Enhance Kentucky's forest resources to improve their contributions to the environment and economy through management and reforestation activities.**

**Performance measure:** Maintain a positive growth-to-removal ratio, while utilizing available forest resources for environmental, economic, and social benefits for all Kentuckians.

**Tactic 1.1:** Promote logging, biomass removal, and forest management practices that enhance the value and provide for the sustainability of Kentucky's forest resources and protect the waters of the Commonwealth.

**Performance measure:** Increase the quality of Kentucky's forests based on distribution of tree grades as indicated in Kentucky's Forest Inventory and Analysis data.

**Tactic 1.2:** Provide technical and financial assistance to the forest products industry and private forest landowners, who provide sustainable renewable resources for energy production from woody biomass; obtain funding for additional division staff to provide this assistance.

**Tactic 1.3:** With the assistance of the Economic Development Cabinet, promote the value and opportunities of Kentucky's forest resources to interested industries, within and outside of Kentucky.

**Performance measure:** Maintain a positive growth-to-removal ratio while utilizing available forest resources for environmental, economic, and social benefits for all Kentuckians.

**Tactic 1.4:** Cooperate with the Department for Energy Development and Independence to develop a sustainable strategy for including woody biomass in the state's renewable energy needs.

**Tactic 1.5:** Maintain the Division of Forestry Tree Nursery capacity to produce and distribute 2 to 3 million tree seedlings annually for reforestation and mine reclamation.

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**Tactic 1.6:** In coordination with The American Chestnut Foundation and its Kentucky Chapter, identify and propagate blight resistant American chestnut seedlings for planting on surface mine reclamation sites.

**Performance measure:** Number of blight resistant American chestnut seedlings planted on surface mine reclamation sites annually.

### Progress:

Kentucky forests are still growing more wood volume than is being lost to harvest and other removals. In fact, the gross growth and net growth to removals ratios (forest land) are 2.8 and 2.0, respectively, across all species groups. This indicates that greater than two times more wood volume is being grown each year on Kentucky forest land than is being removed (both when mortality is and is not included).

The Division of Forestry operated two tree seedling nurseries during the biennium harvesting approximately 2.5 million seedlings which were sold to various public and private organizations who planted them for timber production, wildlife habitat, erosion control, and scenic beauty. The Morgan County Nursery has been rebuilt after the March 2012 tornado destroyed it. It will be operating in its new capacity for the 2014-2015 tree planting season.

The division worked with the Economic Development Cabinet to promote wood-using industries for the *Kentucky Export Initiative*. The two agencies have also shared trade leads and inquiries for wood products while analyzing potential impact on the forest resources.

Strategy 2 of the *Intelligent Energy Choices for Kentucky's Future* plan states "Kentucky has great potential for producing renewable energy from woody biomass." The division continues to work with the Department for Energy Development and Independence to promote woody biomass for energy production.

**Objective 2 – Promote reforestation (according to the Forestry Reclamation Approach) and wildlife habitat enhancement as the preferred choice for post-mining land uses to provide for enhanced wildlife habitat, recreational opportunities, high-value hardwoods for timber production, improved hydrologic conditions, and sequestration of carbon as a means to control greenhouse gas accumulation.**

**Tactic 2.1:** Encourage permit applicants during initial permit walks on potential surface mine sites to establish forestland as the approved post mining land plan using the Forestry Reclamation Approach; permit applicants should be encouraged to seek the favorable approval of the landowner for this use.

**Performance Measure:** Acres and percentage of reclamation plans that include ARRI reforestation as post-mining land use.

**Tactic 2.2:** Encourage the Forestry Reclamation Approach on Abandoned Mine Land (AML) Projects and seek the favorable approval of the landowner for this use.

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**Performance Measure:** Acres of ARRI reforestation included on AML projects.

**Tactic 2.3:** Facilitate the approval and installation of carbon sequestration demonstration projects based on the Forest Reclamation Approach.

### Progress:

During FY 2014 the DNR permitted total new acreage of 16,643 acres on new and existing mining operations. Mining companies committed to reforesting 7,101 acres in 2014, which will result in the establishment of more than 4,800,000 trees (assuming a typical planting rate of 680 trees per acre) when these sites are reclaimed.

During FY 2014, DNR granted Phase 3 bond releases (complete releases) on 4,286 reforested acres that had been planted with trees and shrubs. Of that acreage, approximately 860 acres of that released acreage has been reclaimed using Forestry Reclamation Approach (FRA) methodology. The remaining acres were also planted with trees and shrubs, but the companies may or may not have specifically followed the FRA approach.

DNR maintains an ongoing relationship with Green Forests Work (GFW) to convert previously reclaimed grasslands on non-jurisdictional mine lands back to forests. GFW received their 501 (c) 3 status from the IRS in 2013 and is independently funded through grants, donations and in-kind contributions. During FY 2014, GFW received grants, donations and in-kind contributions totaling \$ 891,694 to continue its work throughout the Appalachian coal fields. To date, more than 457,000 trees have been planted by 3,800 volunteers on 675 acres of mined land in the Kentucky coal fields, and more than 1.2 million trees have been planted by 10,000 volunteers throughout the Appalachian coal fields.

During 2014 DNR partnered with GFW to coordinate volunteers on fourteen tree planting events in eastern Kentucky. During those events DNR assisted volunteers in the planting of trees. GFW continues to gain momentum and their tree planting events have been attracting a great deal of interest and participation with scouts, college and church groups.

DNR has maintained strong relationships with the University of Kentucky's Department of Forestry and Department of Biosystems & Agricultural Engineering. The purpose of these relationships is to establish research and demonstration areas that will be used to assess forest growth capabilities, water quality improvement and carbon sequestration capacities of quick growing, high-value Appalachian hardwood species on surface mined lands.

### **Objective 3 – Support the use of Agriculture Water Quality Act plans and practices in the development and production of biofeedstocks for energy production.**

**Tactic 3.1:** The Division of Conservation serves as a resource for producers to develop and implement individual water quality plans, conservation plans, compliance plans, nutrient management plans, forest management plans and other measures on their farms which comply with the Agriculture Water Quality Act, without creating a financial hardship or a decrease in productivity.

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**Performance measure:** Increase by 5 % the annual number of acres that has some applied conservation practices from the FY 2009 baseline of 438,059.

**Tactic 3.2:** Evaluate the effectiveness of BMPs, and in conjunction with the Division of Water, develop regional or priority protection areas in regions with documented water quality problems.

### Progress:

The Division of Conservation, with technical assistance from Natural Resources Conservation Service, has implemented the Agriculture Water Quality Act through the following activities during FY 14:

- Technical Assistance to 10,267 customers
- Conservation Practices Planned – 11,063
- Conservation Practices Applied – 10,847
- Conservation Plans Written – 1,582
- Conservation Plans Applied – 2,352
- Conservation Plans written for 103,426 acres
- Conservation Plans applied to 165,315 acres
- Comprehensive Nutrient Management Plans (CNMP) - 19 written
- CNMP – 678 acres
- Soil Quality applied to 97,517 acres
- Grazing land conservation applied to 37,121 acres
- Forest land conservation applied to 16,845 acres
- Wetlands created, restored, enhanced – 2,797 acres (FY13)<sup>1</sup>

The technologies and economics of biofeedstocks for energy production are improving. Additional technologies are being commercialized to produce other advanced biofuels such as renewable gasoline, renewable diesel, and butanol. There is a great deal of research taking place around the world in this field. Kentucky will be prepared to respond if conditions become ripe for the development of projects that can help farmers profitably sell biofeedstocks.

**Objective 4 - Increase the adoption of agricultural best management practices for proper conservation and wise use of Kentucky's soil, water and other natural resources.**

**Tactic 4.1:** Support the efforts of the 121 local conservation districts to effectively deliver technical assistance and funding to support conservation practices in all Kentucky counties, with emphasis on those counties where NRCS and the Farm Service Agency no longer maintain offices.

**Tactic 4.2:** Develop and implement a web-based application process for the Kentucky Soil Erosion and Water Quality Cost Share Program that will provide cost share assistance to

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<sup>1</sup> Wetland acreage numbers are provided by NRCS. The FY14 wetland acreage amounts were not available at the time of this update

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landowners that can be used for the installation and maintenance of agricultural best management practices.

**Performance measure:** Number of applicants for KY Soil Erosion and Water Quality Cost Share Program funds who apply online and the number of web-based applications received. Number of environmental grants provided to conservation districts.

**Tactic 4.3:** Educate conservation districts, farmers, landowners and contractors as to the availability of the low-interest loans that can be used purchase heavy or specialized conservation equipment for the installation of conservation or best management practices.

**Performance measure:** Number and amount of new equipment loans made annually.

**Tactic 4.4:** Support and assist conservation districts to in implementing additional local, state and federal programs such as, the Tobacco Settlement Agreement Phase I Model Programs, and the Landowner Incentive Program, among others, that help farmers and landowners address resource concerns,.

**Performance measure:** Amount of assistance funding obtained by landowners through these programs.

**Tactic 4.5:** Support the Forestry Best Management Practices Board, which also serves as the Silviculture Committee of the Agriculture Water Quality Authority, to review and revise silviculture best management practices.

**Performance measure:** Amount of assistance funding obtained by landowners through these programs.

### Progress:

The Kentucky Soil Erosion and Water Quality Cost Share Program provide financial assistance to individuals to implement best management practices on farms or in forest operations. In FY 2014, the division received 1,340 applications resulting in \$10.3 million dollars requested. Due to only \$2.5 million being available, 353 applications involving 425 best management practices were approved.

The Equipment Loan Program provides necessary equipment for the installation of best management practices. Low interest loans are made to conservation district for no-till drill, dozers, aerators, trenchers and other types of specialty equipment needed in the community to install best management practices. For FY 14, six new equipment loans were made for a total of \$240,903.53.

The Division of Conservation has been working in collaboration with Ohio, Indiana, the Electric Power Research Institute and other stakeholders on the "Ohio River Basin Interstate Water Quality Trading Project." Through this pilot trading project, landowners in 6 northern Kentucky counties (Boone, Bracken, Carter, Elliott, Greenup and Mason), as well as landowners in Indiana and Ohio, will be able to receive money for the best management practices they have installed on their agricultural lands. These practices will reduce the total nitrogen and total phosphorus released from agricultural activities. These

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reductions will generate credits that can be purchased by permitted dischargers, who can use this program as a flexible option to achieve compliance with their Clean Water Act 402 permit requirements. Of the nine landowner contracts currently in place, six have their practices installed. Credit trading is expected to begin in the fall of 2014.

### **DNR GOAL 3. Ensure the natural resources of Kentucky are protected, managed and enhanced to provide maximum benefits to the people and economy of Kentucky.**

The Division of Forestry, the Division of Conservation and the Kentucky Heritage Land Conservation Fund are the three agencies in DNR charged with engaging Kentucky's public and private landowners in activities that protect, manage and enhance land, water and wildlife resources. Kentucky's 11.9 million acres of forestland and 85,300 farms provide multiple benefits to the economy and environment of Kentucky. Forests provide direct economic benefit through the harvest of wood and forest products. Over \$9 billion in revenue is contributed to the State's economy annually from the primary and secondary wood industries; agricultural income is \$5.9 billion per year. Forests improve water quality and aquatic habitat, enhance aesthetic appeal (tourism), provide wildlife habitat, increase recreational activities, and help control greenhouse gas emissions by sequestering carbon. The continued value of Kentucky's renewable forest resource depends on sustainable management practices and protection from threats to forest health. Sustainable management includes human activities such as competent forest stewardship, responsible logging practices, and proper reforestation. The threats to forest health come from human activities such as unplanned development (deforestation) and human-caused wildfires (primarily arson), and from environmental threats such as insect pests (gypsy moths, hemlock woolly adelgid, emerald ash borer) and diseases (sudden oak death, dogwood anthracnose).

#### **Objective 1 – Establish programs and partnerships to reduce the incidence and impact of wildland fires in Kentucky**

**Performance measure:** By June 30, 2014, decrease the number of Kentucky's acres burned from forest fires by 20% from the 2010 ten-year average.

**Tactic 1.1:** Establish a media campaign as recommended by the Wildland Arson Task Force.

**Tactic 1.2:** Promote the Firewise Program through the Division of Forestry to make communities at the wildland interface more resistant to fire damage and reduce the financial and resource burden of fire on individuals and local fire departments through preparation and planning.

**Performance measure:** Number of Firewise communities in Kentucky.

#### Progress:

The 2014 ten-year annual average number of acres burned by wildfires in Kentucky is 40,413. Over 95% of the wildfires are caused by humans with over 60% caused by arson. To date, funding has not been appropriated to implement a dedicated law enforcement unit to focus on this serious problem, despite an earlier recommendation by a Governor's Task Force to do so. The Division of Forestry (DOF) worked

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routinely with local law enforcement, volunteer fire departments, and community leaders to reduce the number of fire incidents and educate the public on fire safety.

There are 38 designated *Firewise* communities in Kentucky. The Firewise program encourages people and local leaders to take responsibility to make their homes and communities safe from wildfire. A Firewise Community is the national recognition a community receives when it creates a board or committee, obtains a wildfire risk assessment of the area, creates an action plan to minimize the wildfire risks, conducts a “Firewise Day” event each year, and invests a minimum of \$2 per capita in local Firewise actions for the year

### **Objective 2 – Protect Kentucky’s forest resources from environmental threats such as fires, pests and diseases.**

- Tactic 2.1:** Obtain funding to replace and upgrade firefighting equipment to allow efficient firefighting. Program budget increases to acquire needed equipment in line with replacement schedule.
- Tactic 2.2:** Monitor and respond to threats to the health of Kentucky’s forests.
- Tactic 2.3:** Increase public awareness of threats to Kentucky’s forest health such as gypsy moths, hemlock woolly adelgid and emerald ash borer through educational outreach programs and web-based information.

#### Progress:

The DOF purchased two bulldozer/tractor units and ten pumper units and communication headsets were purchased to allow direct contact with dozer operators while constructing fire lines.

Forests were monitored for Hemlock Woolly Adelgid and infestations were located in several additional counties. Working with a federal grant, DOF is currently treating state forests, state parks, and the priority sites in the Daniel Boone National Forest. Black walnut trees were monitored for Thousand Canker disease and at this point none have been found to be infested. Further monitoring was accomplished for bark beetle infestations, including Emerald Ash Borer, Asian Longhorn beetle, woodwasps, Ambrosia beetles and Southern Pine Beetle.

The division held three Hemlock Woolly Adelgid workshops in southeastern and eastern Kentucky. A Woodland Owner Short Course in southeastern Kentucky for Hemlock Woolly Adelgid and one in northern Kentucky for Emerald Ash Borer awareness.

### **Objective 3 – Protect prime farmland for agricultural production.**

- Tactic 3.1:** Offer opportunities for farmers and landowners to protect prime farmland for agriculture production through the Agricultural District Program, the Purchase of Agricultural Conservation Easement (PACE), program, the Purchase of Development Rights (PDRs) program or other related farmland protection programs.

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**Performance measure:** On a yearly basis the increase in the number of acres protected by farmland protection programs.

### Progress:

The designation of farmland to be part of an Agricultural District is designed to protect the state's best agricultural land for food and fiber production and to prevent its conversion to nonagricultural usage. Land enrolled in the program cannot be annexed, cannot be condemned without mitigation, is taxed at the agricultural rate, is eligible for deferred assessment costs when water lines are extended, and receives extra points when applying for state Cost Share or to the Purchase of Agricultural Conservation Easements (PACE) Program. Farmers continue each year to enroll in this special program and at this time the state has 469,028.60 acres of farmland enrolled with 3,763 landowners.

The Division of Conservation provides soil survey, land use and Geographical Information System data to assist the Purchase of Agricultural Conservation Easements (PACE) Board with the ranking of landowner applications who offer their land for easement under the program. To date, the PACE program has 88 purchased easements and 34 donations on a total of 25,565 acres.

The Conservation Reserve Enhancement Program (CREP) is an enhanced version of the USDA Conservation Reserve Program (CRP) which has been the federal government's largest and most comprehensive private lands environmental improvement program. Because the section of the Green River in Kentucky has been identified as such a special place, partner agencies felt that the enhanced version of CRP would be ideal for this area. As of the fall of 2009, all 100,000 acres allotted for this program have been utilized and each year farmers are profiting from performing best management practices that protect this vital water source. The partnering agencies (NRCS, DOC, KYDFWR, and DOF) worked diligently during the year to identify gaps in the program and then design an amendment that fit the local geography and land use to embody the intent of CREP.

In FY 12, the Division of Conservation began discussions on the Water Quality Trading Pilot Project, a partnership project between the Ohio, Indiana and Kentucky Divisions of Conservation and the California based Electric Power Research Institute. For the Kentucky portion of the pilot, the project involves 6 Northern Kentucky counties: Boone, Mason, Bracken, Carter, Elliott and Greenup. The program uses private money from the Electric Power Research Institute (EPRI) to implement conservation best management practices on private lands to reduce agricultural based nutrient loading, particularly nitrogen and phosphorous, of the Ohio River Basin in the hopes of reducing the Gulf Coast hypoxic zone. Nutrient reductions for each practice are estimated using the EPA's Region 5 Model. Each pound of nitrogen and each pound of phosphorous removed from the water are counted as a single credit. The credits generated by each operation may be purchased by power companies to meet regulatory nutrient reduction requirements. Currently in Kentucky nine landowner contracts are in place with six of the nine installed. Credit trading is expected to begin in the fall of 2014.

### **Objective 4 – Promote the establishment of new wetland areas as a part of natural resources development activities under the guidance of the Wetlands Working Group.**

**Tactic 4.1:** Increase wetland development by identifying departmental programs that can develop wetlands projects and allocate the necessary resources.



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**Tactic 4.2:** Support the development of the Center for Wetlands and Stream Restoration sponsored by the U.S. Forest Service.

### Progress:

During the construction of the Big Branch Acid Mine Drainage (AMD) project in Perry County, the Division of Abandoned Mine Lands incorporated into the reclamation two vernal pools. These pools will provide excellent habitat for wildlife, especially amphibians.

The DNR continues to work with the U.S. Forest Service to identify programs and resources that will promote wetland reestablishment and creation wherever possible.

### **Objective 5 – Promote stewardship of Kentucky’s natural resources.**

**Tactic 5.1:** Increase by 10% over the next five years, using a 2008 baseline, landowner participation in forest stewardship activities of publicly owned and privately owned forestlands

**Tactic 5.2:** Obtain annual funding of \$500,000 for the Kentucky Forest Conservation Act’s Stewardship Incentives Fund which can be used as cost-share for forest landowners when implementing silvicultural practices.

**Tactic 5.3:** Division of Conservation promotes improved public awareness of DNR’s role in the stewardship of Kentucky’s natural resources and environment through educational and public outreach efforts, such as Earth Day, the Essay and Writing Contest, Envirothon, district newsletters, tree give-away programs, and the Division’s Web site.

**Performance measures:** Number of teams participating in the Envirothon. Number of students participating in the Essay and Writing contest.

### Progress:

The Division of Conservation worked diligently to educate and promote the stewardship of Kentucky’s natural resources by educating the state’s youth through two programs. *Envirothon* is a program that works with high school students and creates a competition focused on environmental issues involving aquatics, forestry, soils, wildlife and a current issue. For FY 14, Kentucky Envirothon had 35 teams compete. The *Jim Claypool Art and Conservation Writing Contest* is for students in 1st through 12th grades and rotate around the subjects of soils, water, forestry and wildlife.

The Kentucky Division of Forestry (KDF) assisted forestland owners in planting tree seedlings on 735 acres and working with landowners to implement 9,342 acres of stand improvement practices for existing forestland. Landowners harvested 3,323 acres of forests with division assistance ensuring the health of the remaining forest.

Environmental education continues to be a key in protecting and enhancing Kentucky’s forest resources. KDF participated in field demonstrations and workshops reaching more than 15,000 landowners. KDF is co-author of the *Kentucky Woodlands Magazine* which is produced three times a year with a circulation

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of 12,000 copies and is available online. Each issue contained numerous articles on forest management, health, invasive species, champion trees, utilization and educational opportunities.

KDF worked with other partners such as the USDA Natural Resources Conservation Service, Farm Bureau, Kentucky Woodland Owners Association and others to reach the more than 467,000 forest landowners across the state. The division worked with the Division of Conservation to provide tree seedlings as a match for tree seedlings purchased and distributed by local conservation districts for Arbor Day events.

KDF assists cities and communities in the stewardship of their urban forests. In April 2013, thirty-two communities were designated as a Tree City USA® for their continued commitment in managing their urban trees. One municipal utility and six universities also received designations as Tree Line USA® and Tree Campus USA® respectively through division assistance.

Governor Beshear announced a long-term reforestation project throughout the Commonwealth on lands that are deemed suitable and available for such activity on April 3, 2014. The project utilizes Kentucky's Boy Scouts and Girl Scouts to assist with the planting of bare root tree seedlings produced by (KDF). The plantings will take place on both public and private lands. The goal for this project is to plant 20 million seedlings over the next 20 years, making it currently the most ambitious tree planting project of its kind in the nation. The project has been branded "Kentucky's 20/20 Vision for Reforestation...Planting 20 Million Seedlings in 20 Years." So far 447,871 seedlings have been planted or given away since January 1, 2014.

**Objective 6 – Kentucky Heritage Land Conservation Fund (KHLCF) will continue to promote the conservation and management of ecologically significant lands throughout the Commonwealth.**

**Tactic 6.1:** Award funding for the purchase and preservation of selected natural areas which will protect rare and endangered species and migratory birds, save threatened areas of natural importance; and provide natural areas for public use, outdoor recreation, and education.

**Tactic 6.2:** Encourage partnerships of state and local agencies in the protection of natural lands.

**Performance measure:** On a yearly basis, increase in acreage protected by KHLCF conservation easements or deed restrictions.

**Tactic 6.3:** Enhance the land stewardship of KHLCF funded properties by conducting stewardship workshops for partners which have purchased natural lands with KHLCF funding.

**Tactic 6.4:** Engage in a broad-range of public education and communications activities designed to build support for the KHLCF program.

Progress:

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This goal is accomplished by awarding funding for the purchase and preservation of natural areas that protect rare and endangered species and migratory birds, areas of natural importance, and natural areas utilized by the public for outdoor recreation and education. The fund continued to encourage partnerships between state and local agencies for the acquisition and protection of these natural areas.

HLCF staff continued their outreach efforts through stewardship workshops and seminars for award recipients and the public. In FYs 2014 staff completed the following:

- Staff biologist instructed two invasive species/site restoration workshops as part of the Kentucky Native Plant Society Stewardship Certification Program, in conjunction with Kentucky Division of Forestry;
- Three presentations were given to civic groups on “Land Conservation in Kentucky”;
- Staff biologist was guest lecturer for biology department field trips for Campbellsville University and Transylvania University;
- Staff biologist was active in developing Kentucky Prescribed Fire Council and Kentucky Native Plant Society conferences;
- Staff biologist conducted over 100 conservation easement/site inspections annually throughout the state on properties purchased using KHLCF funds. Many of these visits incorporated meetings with the managing entity, including judge-executives and mayors.
- Staff biologist coordinated a project with the Kentucky Natural Lands Trust, Kentucky Division of Water Wild Rivers Program and Eastern Kentucky University to assess bat populations on 25 KHLCF sites using acoustic monitors.
- Over both years, 35 on-site visits were conducted for new application project reviews.
- Staff biologist published articles quarterly in Kentucky Land Air and Water Magazine and Kentucky Academy of Sciences newsletter.
- Staff annually set up KHLCF display at Conservation Districts Convention, Governor’s Conference on Energy and the Environment, Earth Day at the Capitol, and Biodiversity Day at the Capitol.

In an effort to increase license plates sales, the KHLCF brought back the popular classic “bobcat”, “cardinal”, and “butterfly” designs. The marketing campaign included new posters distributed to county clerks and extension offices, press releases on new property acquisitions, one article in the EEC’s Land, Air and Water publication and radio spots on NPR stations in Kentucky’s largest metro areas.

In conjunction with University of Kentucky Extension, the KHLCF published a book on KHLCF sites in an effort to increase awareness of the program – *Kentucky, Naturally: The Kentucky Heritage Land Conservation Fund at Work*, by Dr. Thomas G. Barnes.

The enacted FY 15/16 budget sweeps 80% of the KHLCF projected revenue from the KHLCF restricted fund to the General Fund during the biennium. Due to concerns by the KHLCF Board to continue its

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mission effectively, two staff positions (one contract position and one administrative assistant shared with the Division of Conservation) were eliminated by attrition bringing the total KHLCF staff to three, two located in DNR/DTAS and one in the Finance Cabinet/Real Properties Branch.

New policies and regulations were established to increase program efficiency, effectiveness and project oversight by the KHLCF Board of Directors. These included annual project site visits by KHLCF staff, the development of habitat management and trail management guidelines for sites, development of biological inventory standards, and adoption of a multi-phased management funding protocol to better track and direct management expenditures.

During FY 2014, the fund acquired 5,951.27 acres for conservation through 10 awards.

| PROJECT   | AGENCY                      | COUNTY             | ACRES           |
|---|-----------------------------|--------------------|-----------------|
| Jefferson Memorial Forest-Greenwell Tract         | Louisville Metro Parks      | Jefferson          | 24.06           |
| Jefferson Memorial Forest-Beauchamp Tract         | Louisville Metro Parks      | Jefferson          | 30.00           |
| St. Anne Woods                                    | Campbell County CD          | Campbell           | 146.46          |
| Big Rivers Phase II                               | KDFWR & DOF                 | Crittenden         | 4,241.00        |
| Red River-Smith Property                          | DOW                         | Wolfe              | 161.47          |
| Little South Fork-Self tract                      | DOW                         | Wayne/<br>McCreary | 863.89          |
| Upper Green River Biological Preserve-Lawler Bend | Western Kentucky University | Hart               | 364.50          |
| Cove Springs-Gillman Tract                        | City of Frankfort           | Franklin           | 3.00            |
| Swallowfield Baxley Easement                      | KSNPC                       | Franklin           | 64.35           |
| Pine Mountain-Greene Tract                        | PARKS                       | Bell               | 52.54           |
|   |                             | <b>Total:</b>      | <b>5,951.27</b> |

In addition, 35 additional project applications were reviewed and approved by the board in the biennium. Funding awards totaling \$15,764,557 million were approved for the proposed acquisition and management of more than 5,629 acres located throughout the state.

Revenue for the FY 13/14 biennium declined by over \$500,000 from the FY 11/12 biennium.

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| <b>5-Year Receipts<br/>by Source</b>                               | <b>FY10</b>        | <b>FY11</b>        | <b>FY12</b>        | <b>FY13</b>        | <b>FY14</b>        |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>License Plates</b>  | \$678,116.50       | \$638,470.00       | \$571,970.00       | \$431,100.00       | \$412,370.00       |
| <b>Environmental<br/>Fines</b>                                     | \$1,363,883.68     | \$1,918,713.01     | \$2,199,707.55     | \$2,332,183.04     | \$1,709,372.74     |
| <b>Unmined<br/>Mineral Tax</b>                                     | \$2,102,782.94     | \$2,399,253.17     | \$2,870,185.73     | \$2,820,757.75     | \$2,676,911.60     |
| <b>Other Receipts</b>  | \$1,100.00         | \$0                | \$0                | \$0                | \$71.00            |
| <b>Interest</b>  | \$193,245.00       | \$74,110.72        | \$268,871.00       | (\$14,432.57)      | \$71,525.70        |
| <b>Statutorily<br/>mandated<br/>deductions (DEDI<br/>and KEEC)</b> | (\$550,000.00)     | (\$550,000.00)     | (\$550,000.00)     | (\$550,000.00)     | (\$550,000.00)     |
| <b>TOTAL</b>   | <b>\$3,789,128</b> | <b>\$4,480,547</b> | <b>\$5,360,734</b> | <b>\$5,019,608</b> | <b>\$4,320,251</b> |

**DNR GOAL 4. Ensure coal mining, logging, firefighting and agricultural activities are performed in a safe manner.**

DNR's responsibility extends beyond production and protection of natural resources to the safety of the employees performing those tasks. Coal miners, loggers, firefighters and agricultural workers are at greater risk of death or injury than many workers, and lack of training or poor work habits of some employees may put others (including private citizens) at risk as well. DNR agencies work to reduce the risk to natural resources workers and to other citizens during natural resources activities.

The Office of Mine Safety and Licensing provides training for miners, certifies miners, inspects surface and underground mines for compliance with health and safety regulations, corrects unsafe acts, investigates accidents, responds to mine emergencies, and requires drug testing of miners and sanctions individuals and companies for violating mine safety regulations.

DNR regulates coal and non-coal blasters and blasting operations via the Explosives and Blasting Branch of the Division of Mine Reclamation and Enforcement (DMRE). Of great concern to the regulatory agencies are any operations that are blasting near occupied dwellings or other improvements. With such operations, there is always the possibility of a flyrock event occurring, during which rock and debris are thrown from the mine or construction site causing damage to roads, private property, or in rare cases injury or death to people. DMRE continuously explores practices and penalties that reduce the number of flyrock incidents.

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### Objective 1 – Prevent Flyrock Incidents Related to Coal and Non-Coal Mining (DMRE)

**Tactic 1.1:** Identify mine sites at high risk for flyrock events; investigate the actual blasting site and evaluate the geology of the area, including the steepness of slopes and prior to the commencement of blasting operations, review the plans for the drilling operations, loading processes and operational timelines.

**Performance measure:** While there were 6 flyrock events at coal sites and 2 flyrock events at non-coal sites in Kentucky in fiscal year 2013, the goal continues to be having zero flyrock events.

**Tactic 1.2:** Provide the on-site blasting operation personnel with information about any problematic conditions that are identified and educate them as to measures that have prevented blasting problems previously in similar conditions; encourage blasting personnel to develop a flyrock prevention plan.

**Performance measure:** Increase the number of pre-blasting briefings of on-site personnel on all blasting operations. Participate in all meetings entailing the implementation of a Blasting Remediation Plan.

**Tactic 1.3:** Continue to develop in coordination with OSM, coal industry associations, and other agencies, training courses and procedures addressing the specific needs of licensed blasters relative to the unique areas for their blasting operations.

**Tactic 1.4:** Continue to implement the DNR's Approved Training Plan and incorporate into blaster training courses suggested training topics.

**Tactic 1.5:** Continue to require training classes be evaluated by students taking the course or participating in a required training test.

**Tactic 1.6:** EBB continues their coordination with the University of Kentucky, Department of Mining Engineering in a joint effort to produce a study of flyrock events in Kentucky. The study will review and analyze data from many different perspectives and look for trends to identify common and contributing causes of flyrock incidents.

#### Progress:

While there was 1 flyrock event at a coal site and 13 flyrock events at non-coal sites in Kentucky in fiscal year 2014, the goal continues to be having zero flyrock events.

Efforts are being made to determine high risk sites for non-coal operations (including construction and demolition operations) to implement the same measures used for flyrock prevention for coal sites. Special consideration is being given to the unique circumstances that occur on non-coal sites (i.e., extremely close distances to structures) and efforts are made to promote the use of mats and/or other precautions to prevent flyrock.

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The number of pre-blasting briefings of on-site personnel on coal and non-coal operations was increased. The Blasting Remediation Plan (BR) meetings proved successful and EEB staff continued their participation. Private and confidential blaster/inspector discussions fostered informal information sharing about specific conditions which has also proved helpful.

Explosives and Blasting Branch (EBB) assisted Division of Mine Safety (formerly Office of Mine Safety and Licensing), Bluegrass Chapter of the Society of Explosive Engineers, and other agencies in developing training courses and procedures addressing the specific needs of licensed blasters relative to the unique areas for their blasting operations. EBB implemented a policy that students participating in training classes complete evaluations of course material and presentation. Staff routinely monitored training classes to insure professionalism and adherence to the guidelines of the program under which it was approved. Staff also continued updating the suggested training topics based upon reviews of regulatory work and issues found to be most problematic in the blasting industry.

A report has been produced regarding a study of flyrock at coal sites that was conducted in coordination with the University of Kentucky, Department of Mining Engineering. The study reviewed and analyzed data from many different perspectives and looked for trends to identify common and contributing causes of flyrock incidents.

Due to the increase of flyrock events at non-coal sites, additional research by the University of Kentucky is being discussed as to the unique situations surrounding the increase in the number of flyrock incidents on non-coal sites and the possibility of current technologies being deficient. This type of research would be more proactive approach to flyrock. The next hurdle would be securing funding for the research.

### **Objective 2 – DNR Divisions will provide training to increase workplace safety and reduce worker accidents and injuries.**

**Tactic 2.1:** Division of Conservation provides workplace safety and training to division staff and conservation district employees.

**Tactic 2.2:** Division of Forestry provides employee firefighter training with increased emphasis on safety.

**Tactic 2.3:** Division of Forestry provides a safety briefing prior to each deployment for wildfire suppression.

**Tactic 2.4:** Division of Safety Analysis, Training and Certification uses Safety Analysts to identify and correct unsafe acts by miners working in underground and surface mines.

**Performance measure:** Number of unsafe acts observed and corrected.

**Tactic 2.5:** Explosives and Blasting Branch resumes Safety / First Aid training session for all blasters.

Progress:

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Wildland Fire Safety Training Annual Refresher has been provided to all full-time and part-time firefighters. Annual training in first-aid and CPR was conducted in every DOF office for all full-time and interim firefighters. Incident Commanders conducted safety briefings at each wildfire incident prior to beginning suppression activities.

The Mine Safety Analysis program within the Division of Mine Safety (formerly the Office of Mine Safety and Licensing (OMSL)) is a critical component of the state's overall mine safety program. Trained safety analysts are placed in underground mines and at surface mines to observe and evaluate the work habits of all miners involved in coal production. They act as job safety counselor, providing essential safety training and correcting unsafe conditions.

In calendar year 2013, OMSL Instructors/Analysts trained and/or tested a total of 19,184 miners and issued 14,452 certifications. Of the total trained, 4,443 were certified surface and underground foremen. These foremen, according to KRS 351.106(1), are required to have this training annually. The majority of these miners are front line supervisors and this training better prepares them to become more efficient and more safety oriented.

Instructors teach approximately 15 different mine safety classes, thus making Kentucky miners more comprehensively knowledgeable in their chosen fields of endeavor. Surface miners backing over berms and into hollow fills with rock trucks and underground miners getting crushed by equipment have recently plagued the industry with injuries and fatalities. The Mine Safety Analysis program has focused heavily on these areas utilizing their skills in the classroom, safety meetings and on the job training of the miners. Due to these efforts, the coal industry has seen a drastic reduction in these types of accidents and fatalities.

### **Objective 3 - Reduce Serious Mine Accidents and Fatalities. (OSML)<sup>2</sup>**

**Tactic 3.1:** Complete all required annual underground mine, surface mine and electrical inspections according to Kentucky requirements.

**Tactic 3.2:** Continue to identify safety hazards and unsafe behaviors that numerically are the highest contributors to accidents, injuries and fatalities in Kentucky coal mines.

**Performance Measure:** Ascertain whether the current ten-year average of reportable mine accidents and fatalities is declining to levels less than the previous 10-year average.

**Tactic 3.3:** Develop targeted safety training for mine foremen and miners helping them avoid unsafe conditions and behaviors.

**Tactic 3.4:** Propose regulatory or statutory changes as necessary to address emerging mine safety issues.

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<sup>2</sup> In June, 2014, the Office of Mine Safety and Licensing (OMSL) was reorganized to the Division of Mine Safety (DMS). The reorganization was necessary to meet a \$4.5 million budget reduction for FY 15 and 16. This reorganization and resulting staff reduction has not changed DMS's objectives within the strategic plan.



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**Tactic 3.5:** Continue to support the Mine Mapping Initiative allowing citizens, drillers and miners to identify the extent of previous mining in all parts of Kentucky's coal fields, thereby avoiding hazards created by proximity of the previous mining.

**Performance measure:** Annual increase in number of mine maps made available to the public through the Mine Mapping site.

**Tactic 3.6:** Meet with officials responsible for miner safety in adjacent states to explore the possibility of reciprocity for miner certification and suspension or revocation of certifications due to safety violations.

**Tactic 3.7:** Provide professional accident investigation for all mine accidents that timely and accurately determines the cause(s) of the accident and use this information to prevent future occurrences.

### Progress:

Safety inspections are made by well-qualified and trained inspectors who are stationed in the six district offices/mine rescue stations throughout the commonwealth. Inspectors carry out and enforce the laws of Kentucky as specified by KRS 351 – 352 and associated regulations. Inspectors report on the condition of the mine and a copy of the inspection report is given to the operator or superintendent of each mine. Inspections are proactive accident prevention measures used to identify hazards prior to their causing accidents.

Kentucky law requires the agency's inspection force to conduct four underground inspections a year. Of the four annual inspections, one shall be full electrical inspections and three general inspections. Furthermore, all surface mines must be inspected two times annually.

### Licensing Activity

| Type of Mine License     | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------------|------|------|------|------|------|
| Underground Mine License | 219  | 214  | 192  | 152  | 129  |
| Surface Mine License     | 294  | 317  | 247  | 231  | 222  |

### Inspection Data

| Type of Inspection                | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------------------|------|------|------|------|------|
| General Underground Inspection    | 657  | 652  | 367  | 495  | 435  |
| Electrical Underground Inspection | 340  | 355  | 200  | 288  | 233  |
| Idle Inspection                   | 98   | 97   | 64   | 125  | 68   |
| General Surface Inspections       | 294  | 317  | 247  | 360  | 307  |

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|                          |    |    |    |     |     |
|--------------------------|----|----|----|-----|-----|
| Surface Idle Inspections | 98 | 97 | 64 | 146 | 124 |
|--------------------------|----|----|----|-----|-----|

### Enforcement Data

| Type of Citation | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------------|------|------|------|------|------|
| Non Compliances  | 3593 | 2693 | 2158 | 4387 | 3202 |
| Closure Orders   | 2918 | 2699 | 1558 | 2301 | 1504 |

Underground and surface mine fatalities have shown a downward trend over the past ten (10) years as compared to the previous ten (10) years. Surface and underground accidents have also decreased.

The DNR continues to support the Underground Mine Mapping Information System (MMIS), which offers immediate online access to geo-referenced underground mine maps to the public, resource extraction industries, and governmental agencies. The online service allows for the identification of historic and current mining activity in both of Kentucky's coalfields so as to avoid hazards created by unmapped underground voids. The system continues to provide essential information in the event of miner rescue, subsidence issues and blow-outs from abandoned mines. The Division of Abandoned Mine Lands provides DMS \$90,000 to continue this crucial effort.

As of 7/31/14, the database contained: 80,536 total scans of which 35,013 were transmittal documents and 43,286 were maps. The number of geo-referenced maps has reached 38,012.

The web site averaged approximately 9,000 hits a day and 300,000 hits a month for the first two quarters in 2014. 50 to 200 maps are downloaded each day. DMS sent an updated database of 182,000 historical records (1884 – 2002) to accompany Kentucky's scans to OSM-Pittsburgh.

The MMIS is being enhanced currently as the Division of Mine Safety and Mapping Capital IT project is developed and implemented.

**Objective 4 – Upon request of any Kentucky underground coal mine licensee, provide MSHA-mandated mine rescue team coverage that complies with the increased training and contest participation requirements of the federal MINER Act.**

**Tactic 4.1:** Maintain OMSL staff by hiring, equipping and training MSHA mandated mine rescue teams in order to provide adequate coverage for all Kentucky underground mines.

**Performance measure:** All licensed Kentucky mines are provided MSHA signature mine rescue team coverage by OMSL.

**Tactic 4.2:** Use scheduled overtime to allow existing OMSL staff to meet state regulatory inspection requirements and MSHA mine rescue team requirements until new inspectors can be hired and trained.

Progress:

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DMS has six (6) fully equipped mine rescue teams currently. During much of FY14 DMS had twelve (12) teams that provided this critical service to underground mines who requested signature mine rescue coverage. These rescue teams have conducted 302 MSHA mine rescue compliance visits and is in compliance with all MSHA required mine rescue visits.

### **Objective 5 – Assist Water Conservancy Districts to address the continuing issue of Conservancy District dams that need maintenance, breach analysis, or emergency action plans.**

**Tactic 5.1:** In coordination with the Natural Resources Conservation Service (NRCS) identify funds so as upgrade all dams classified as high priority.

**Tactic 5.2:** Promote using funds from the Division of Conservation's Equipment and Infrastructure Loan program as a state match for available federal funds that can be used for this Objective.

#### Progress:

To increase the availability of funds to renovate older agricultural watershed dams, the Soil and Water Conservation Commission has revised its policy for distributing funds from the Equipment Loan Program to include the repair of dams operated under the auspices of local Water Conservancy Districts.

### **DNR GOAL 5. DNR regulatory programs must remain responsive to the changing requirements of related Federal environmental programs, while remaining consistent with state regulatory requirements.**

The current federal administration has initiated an enhanced coordination among state and federal agencies with respect to the implementation of Clean Water Act requirements pertaining to coal mining operations. With USEPA currently increasing its role in the review of CWA Section 404 and 402 (KPDES) permits, state agencies must identify and implement procedures that will allow a more effective coordination among all affected agencies during the permitting process of surface mines.

The Division of Oil and Gas is making changes to Class II primacy package as directed by technical staff from USEPA and will continue to work with USEPA representatives on its application to obtain primacy from the USEPA. The Division is re-evaluating the oil and gas regulatory program to ensure that it is sufficient to address the increased use of horizontal and directional drilling technology. The Division is also in the process of evaluating the feasibility of a performance bond for oil and gas storage facilities.

### **Objective 1 - Improve the efficiency of regulatory processes and programs through elimination of regulatory overlaps, duplication, inefficiencies and inconsistencies between DNR and other state or federal agencies.**

**Tactic 1.1:** Improve coordination and increase the efficiency between DNR, DEP and relevant federal agencies, such as US Army Corps of Engineers, U.S. EPA and Office of Surface Mining Reclamation and Enforcement, in regulating coal mining activities.

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**Tactic 1.2:** Continue to meet and participate in Office of Surface Mining quarterly inter-agency meetings.

**Performance Measure:** DNR participates each quarter in scheduled OSM interagency meetings.

**Tactic 1.3:** Continue the internal review begun in the previous FY of all departmental regulations and repeal duplicative or outdated regulations.

### Progress:

The “Local Interagency Coordination Agreement for Coal Mining Activities in Kentucky Associated with the Clean Water Act, the Surface Mining Control and Reclamation Act, and the Endangered Species Act” was signed by the Kentucky Department for Natural Resources, Kentucky Division of Water, U.S. Fish and Wildlife Service, Office of Surface Mining, U.S. Army Corps of Engineers, and U.S. Environmental Protection Agency on June 20, 2012. These agencies continue to meet on a quarterly basis to address emerging issues.

The Division of Oil and Gas continued its pursuit of primacy of Class II Underground Injection Control wells under Section 1425 of the Safe Drinking Water Act from the USEPA. Division staff worked closely with USEPA Region 4 representatives in order to bring this program to the state level. According to USEPA Region 4, the division is scheduled to receive primacy in 2015. Once primacy is granted, the division will provide a one-stop processing center for all oil and gas industry’s permitting requirements.

At the close of FY14, the Energy and Environment Cabinet Secretary formalized the Oil and Gas Work group with representatives from the oil and gas industry, environmental interests, legal interests and Cabinet personnel. The topics currently being discussed include hydraulic fracturing fluid disclosure, well site reclamation and the removal and reclamation of storage facilities, These topics are currently under evaluation.

The Coal Water Quality Task Force, a joint endeavor with the Department for Environmental Protection meet quarterly to exchange information and resolve water quality concerns. Work continues on the development and implementation of computer system upgrades to improve the efficiency of transferring KPDES permitting and water monitoring data to online sites. DMRE continues to work with DEP concerning water related issues.

DNR coordinated with the Department for Environmental Protection to develop a new protocol for coordination of inspection and enforcement tasks between the two agencies for coal operations. Once a year, the Division of Mine Safety meets with the Virginia Department of Mines to discuss safety trends and issues which may arise concerning the reciprocity issues shared by both states.

**Objective 2 - Evaluate current Oil and Gas regulatory programs and requirements to determine if changes are needed to address changing conditions or responsibilities.**

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- Tactic 2.1:** Division of Oil and Gas finishes review of the current reclamation requirements for oil and gas production and storage facilities and implements a program to address deficiencies.
- Tactic 2.2:** Assess the need for updating and revising Oil and Gas regulations governing horizontal and deviated oil and gas wells.

### Progress:

An in-depth evaluation of the oil and gas regulatory requirements has begun but it is too early to determine quantitative results. An initial effort to review the program in the area of storage facility (tank) registration and removal requirements has evolved into a review of all operational aspects to include the drilling site and associated access roads.

The Division is also reviewing the regulatory requirement for well stimulation/fracturing fluid disclosure. The disclosure of fluids would allow for transparency of oil and gas well completion practices and could be done easily by requiring operators to submit to an existing national fluid disclosure database.

The Division has taken steps to implement electronic filing of *Well Log and Completion Reports* through an EForms project sponsored by the Ground Water Protection Council (GWPC). Division staff is working with GWPC consultants to create an electronic filing system that will provide the Division with more technical data on the drilling of oil and gas wells. This will allow for an increase in the Division's oversight of drilling and completion operations, while decreasing the Division's administrative workload on processing and maintaining paper documents.

### **Objective 3 – Maintain and improve communications with other state and federal agencies.**

- Tactic 3.1:** DMRE coordinates with blasting personnel within OSM and other agencies as to blasting issues, blasting assistance, joint inspections and blasting summits in order to raise the standards of practice for blasting in Kentucky.
- Tactic 3.2:** The DMP and DMRE continue to communicate and coordinate with the DEP Divisions of Water and Enforcement through the Coal Water Quality Task Force concerning water quality permitting and enforcement issues related to coal mining.

**Performance Measure:** Coal Water Quality Task Force meets monthly to exchange information and resolve water quality concerns. Develop and implement computer system upgrades to improve the efficiency of transferring KPDES permitting and water monitoring data to online sites. Continue to foster effective collaboration with DEP's Divisions of Water and Enforcement as to water related issues such as Performance Audit Inspections, responses to Notices of Intent (to sue), and enforcement of DMR reporting.

- Tactic 3.3:** Communicate with industry and environmental groups on a regular basis to promote mutually agreeable resolution to regulatory issues.

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### Progress:

DNR continues to participate in ongoing quarterly interagency meetings composed of representatives from U.S. Office of Surface Mining, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Fish and Wildlife, KY Department for Environmental Protection, KY Division of Water, and KY Department of Fish and Wildlife.

The DMRE Explosive and Blasting Branch (EBB) continues their coordination with blasting personnel within OSM, MSHA, DMS, and other agencies on blasting issues, blasting assistance, joint inspections, and blasting summits in order to raise the standards of practice for blasting in Kentucky.

### **DNR GOAL 6. DNR's human, physical, and fiscal resources are efficiently and effectively managed to maintain a high level of service to the citizens of Kentucky in all DNR program areas.**

Recent funding reductions have taken a heavy toll on the level of experience and number of staff positions and the resources available to do the work of DNR divisions. DNR has identified and implemented efficiency measures in all of its divisions to reduce the resources needed to maintain programs, without reducing the level of service to the citizens of Kentucky. Effective training of all DNR's personnel is an essential part of ensuring consistency of regulatory enforcement and raising the competency of the regulatory program staff.

The most recent reductions in personnel and operations occurred within the Division of Forestry. The reduction resulted in the closure of four field offices and field operations combined into five regional offices. Over 20 employees were transferred out of the Division of Forestry leaving the division with 147 employees and a cap on fulltime employees of 154.

### **Objective 1 – Ensure the competency, consistency and efficiency of new and existing DNR program staff and citizen volunteers through training.**

**Tactic 1.1:** DMRE provides in-house annual new inspector training for all inspection staff and centers its training of its personnel, and possibly DMP personnel, on the requirements that are determined to be of importance, emphasis, or need by management staff.

**Tactic 1.2:** DMRE Train regional administrative staff as to use of Excel software. Offer field training to Frankfort Administrative Staff and Assessment and Records Section Staff to give them a better understanding of the on ground circumstances leading to the inspector's decision that a violation should be written.

**Tactic 1.3 :** Continue DMRE Office Coordinator Training.

**Tactic 1.4:** Staffs from DMP, DMRE and AML take full advantage of OSM course offerings to increase their technical expertise.

**Tactic 1.5:** DMP provides one on one training with new employees and monthly reviewer roundtable training for all permit reviewers.

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**Tactic 1.6:** DMP develops standards for continuing education of supervisory personnel by including GSA classes in performance management and leadership training.

**Tactic 1.7:** DMP provides an on-line library of guidance documents and training modules on technical topics to ensure that permits are issued in compliance with SMCRA requirements and performance standards.

**Tactic 1.8:** By providing continuity of services for the Small Operator Assistance Program (SOAP), increases in effectiveness in serving the small coal mining operator, as well as more efficiently manage program funding, can be realized.

**Tactic 1.9:** Provide joint training for DMRE inspectors and DMP permit reviewers to enhance coordination during permit review, resolution of non-compliances through permitting actions, and field enforcement.

**Tactic 1.10:** Conduct technical, program and leadership training as appropriate for conservation employees, conservation district supervisors, watershed conservancy district supervisors and other citizens of the Commonwealth.

**Tactic 1.11:** Provide ongoing training to all Explosives and Blasting Branch Inspectors to enable them to remain current with any changes occurring in the blasting profession. An online library of policy statements, guidance documents, and reference was created which continues to be further developed and updated for use by the Explosives and Blasting Branch staff.

**Tactic 1.12:** E&B conducts field training on blasting methods and issues for DMRE field staff. EBB inspectors accompany DMRE inspectors when possible on complete inspections and give one-on-one training regarding specific blasting concerns for the permit. EBB inspectors also assist DMRE inspectors regarding blasting complaints. EBB continues to implement this process and strives to make the Surface Mine Inspector/Blasting Inspector relationship a seamless one.

### Progress:

DMP provides an on-line library of guidance documents and training modules on technical documents to ensure that all DMP and DMRE employees are trained sufficiently to ensure the review and issuance of permits are in compliance with SMCRA requirements and performance standards. Reclamation Advisory Memoranda, or RAMs, are issued by the Commissioner and serve as a method of communication between the regulatory mining authority and the coal industry. These RAMs assist the regulated public by explaining and clarifying current or proposed statutes, regulations, or permitting procedures and requirements. Once issued, RAMs are electronically sent to coal industry representatives and interested parties and posted on the DNR web page. In FY 13 and FY 14 four RAM's were issued on a variety of topics important to the coal industry.

The department's mining divisions took full advantage of OSM-sponsored training during the year. A total of ninety-four training slots were filled with personnel from the Division of Abandoned Mine Lands during the reporting period attending thirty-one different courses. In addition, the Division of Mine Permits filled 16 in FY14 and the Division of Mine Reclamation & Enforcement filled forty-two.

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All divisions provided in-house training for new employees and refresher training for veteran staff. The Division of Mine Permits, emphasizing in-house training of its employees during this period, developed a training plan and conducted the following in-house training courses during FY 14:

8/8/13: Mid-term Reviews

9/3/13: Full Cost Bonding

1/14/14: Bond Calculations/Shapefiles

A revised Reviewers Manual is currently under development to coincide with the newly revised MPA-03 application form. DMP reviewers and DMRE inspectors attend OSM training courses together and further coordination is achieved by written comments made on the permit walk sheet and follow up communication by e-mails and telephone regarding issues of concern. EBB inspectors accompany DMRE inspectors when possible on complete inspections and give one-on-one training regarding specific blasting concerns for the permit. EBB inspectors also assist DMRE Inspectors regarding blasting complaints.

### **Objective 2 – Improve efficiency and accuracy of DMRE penalty assessments.**

**Tactic 2.1** Convert Proposed Assessment Worksheet to excel format with automated formulas to minimize mathematical errors.

#### Progress:

Continue to Convert Proposed Assessment Worksheet to excel format with automated formulas to minimize mathematical errors. This project is 80% complete.

### **Objective 3 – Where feasible, use electronic methods of communication with the DNR regulated community and the public to save the time and expense of mailing.**

**Tactic 3.1:** Encourage the use of fully automated (paperless) bond release requests from the regulated community to be uploaded to the regional office FTP sites.

**Tactic 3.2:** Upgrade the workflow processes for the Bond Release and Forfeiture Section to use Staffware for administrative bond releases due to permitting actions with Staffware cases being started in the Division of Mine Permits at permit issuance; to use Staffware for bond substitutions; and to use Staffware for supplemental assurance releases.

**Tactic 3.3:** Convert the current bond release forms from Word to Access format; include SMIS and GIS interfacing of data required for submission.

**Tactic 3.4:** Develop, implement and install an on-line data DOG management system for electronic permitting and reporting to reduce staff handling time and improve accessibility to permitting and reporting information.



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### Progress:

The Department, through the authority of the Secretary's Office, promulgated administrative regulations that allowed the transmittal of enforcement documents (notices of noncompliance and order for remedial measures, order for cessation and immediate compliance, and notice of inspection of noncompliance) electronically when the service is requested by the regulated entities. These regulations became effective 02/03/12. The Department continues to use the RegWatch system that allows citizens to sign up for Department regulations which are then transmitted electronically.

The Division of Mine Permits has finalized conversion of all eleven application forms from MSWord format to MSAccess format. Benefits of this are as follows:

- ✓ Validation to help in filling out an application to reduce deficiencies
  - Data entry is more structured
  - Completeness checks
  - Analysis reporting to identify inaccuracy or inconsistencies
  - Easy to identify required information at a glance
  - Import and export data to and from previous applications
- ✓ Attachments
  - Full build process will take seconds as opposed to minutes
  - Adding attachments is more flexible and supports all file types
  - Attachment names will only be limited to what is a legal filename
  - Easy to change attachments for the resubmittal process
  - Attachment name scheme will be automatically enforced
- ✓ Easier navigation
  - Each section is separated
  - Attachments will directly managed from each section
- ✓ DMP application processing time decreased
  - Interface with SMIS is automated
  - Ease of extracting information from the application to help in the review process.
  - More information going into SMIS processing such as water data
- ✓ Full documentation provided in new User's Guide

Each regional office now has an FTP site where applicants can submit minor field revisions electronically.

A File Transfer Protocol has been developed for the electronic submission of Surface and Ground Water Monitoring Reports. DMP staff is still working to implement a computer system to allow automatic upload of that data into the SMIS database. Blast remediation plans and MSHA joint approval forms can now be submitted electronically to the regional office.

The Division of Oil and Gas has taken steps to implement electronic filing of *Well Log and Completion Reports* through an EForms project sponsored by the Ground Water Protection Council (GWPC). Division staff is working with GWPC consultants to create an electronic filing system that will provide the Division with more technical data on the drilling of oil and gas wells. This will allow for an increase in the

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Division's oversight of drilling and completion operations, while decreasing the Division's administrative workload on processing and maintaining paper documents.

Electronic submittal of proposed penalty assessments has been implemented for those permittees who have elected to receive their penalty assessments transmitted electronically. Receipt of the proposed penalty assessments are verified by *RPost*.

DMRE is working on implementing electronic submittal of bond release applications. This will be implemented by updating and converting the current bond release forms from Word to Access format; including SMIS and GIS interfacing of data required for submission.

### **Objective 4 – Pursue the feasibility of fee and assessment increases to provide additional funding to departmental programs.**

**Tactic 4.1:** Complete a thorough review of departmental fee structures and, where feasible, institute regulatory changes to increase revenue streams in all divisions, with a focus on a revision of the blasting certification fees and blasting licensing fees

#### Progress:

The Department evaluated its fee structure across DNR agencies and came to the conclusion there were two fees that were regulatory-based that could be amended without an authorizing statutory change. These fees were the non-coal permit fee and the Office of Mine Safety and Licensing fee charged for mine licenses. However, due to several factors at the time, including other higher priority statutory and regulatory efforts, this was not pursued further.

### **Objective 5 – Ensure accountability of DNR offices and programs.**

**Tactic 5.1:** Commissioner's Office staff will perform reviews as budget and staff allow of every DNR office for compliance with Cabinet and Departmental policies related to fixed assets, vehicle reports, cash receipts, timekeeping, cell phone usage and other topics deemed necessary by the Commissioner.

**Tactic 5.2:** Division of Conservation will assure completion of conservation and watershed district audits as required by state law and successfully address all identified corrective measures.

#### Progress:

The Division of Conservation implements an audit program for the 121 local conservation districts and watershed conservancy districts that accomplishes the following:

- Each is audited on a 4-year rotation basis as required by law. Districts with more than \$750,000 are audited annually. In FY 14, 37 districts and 9 conservancy districts were audited. All are required to submit a corrective measures plan to DOC. Due to House Bill 1, passed during the 2013 session of the Kentucky General Assembly, districts with more than \$500,000 will be audited annually in future years.

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- The division enacted a “Districts in Good Standing Program” in which conservation districts are graded on their submittal of reports, participation in state programs and involvement in county government. In 2014, 92 of our 121 conservation districts scored 100%.
- The State Auditor lists conservation districts as having one of the best accountability efforts among special purpose districts.

### **Objective 6 – Ensure the efficiency and effectiveness of operations within the Division of Forestry following the 2013 reorganization and realignment.**

**Tactic 6.1:** Fill all vacant positions to the 154 employee cap limit.

**Tactic 6.2:** Complete the closure of the last district office building in Pineville.

**Tactic 6.3:** Establish remote office space with partners or other DNR divisions where needed for Division of Forestry employees whose work counties are too far away from their assigned regional office.

#### Progress:

Although the Division of Forestry has current year funding to potentially fill positions to 154, the biennium budget allows for a cap of 148. The division is actively filling critical positions up to its cap of 148.

The Division of Forestry vacated the office building in Pineville in December of 2013. Presently the division maintains insurance on the building while its disposition is being coordinated by EEC GAPS.

Division employees are collocating with other DNR agencies in Prestonsburg and Middlesboro. In return DNR employees are collocating with Division of Forestry employees in Hazard. Other division employees are utilizing donated space at Conservation District Offices and a volunteer fire department. Virtual Private Network accounts have been established to aid in remote employees accessing state network connections.

### **Objective 7 –Support the information technology needs of DNR to allow DNR’s programs and offices to gain efficiencies through the use of electronic communications, wireless inspection, digital data collection and storage, electronic workflow, computer modeling, GIS applications and electronic reporting. (DTAS)**

**Tactic 7.1:** Provide improved technology planning and coordination of all Department technology staff in light of the ongoing Infrastructure Consolidation by the Commonwealth Office of Technology.

**Tactic 7.2:** Ensure that DNR agencies’ desktop support and data integrity remains stable once the COT consolidation is complete.

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**Tactic 7.3:** Cross train DNR technology staff to support applications for all agencies to avoid interruption of service should a primary support person be unavailable.

**Tactic 7.4:** Continue to improve the Surface Mining Information System for use by the DNR, the regulated community, and the public; develop and implement electronic filing of surface water and ground water data; enter all DMR data that is on paper into SMIS; establish a coordinated protocol with DEP for anticipated entry of DMR data into NetDMR.

**Tactic 7.5:** Train employees on the use of shapefiles which are now required by RAM #158.

**Tactic 7.6:** Provide a comprehensive suite of data retrieval and analysis tools to DMP, encapsulated in a single applications suite that can be attached to any ArcMap project (PRISM Project).

**Performance measure:** The degree to which the PRISM increases accuracy and saves time relative to earlier workflows programs.

**Tactic 7.7:** Identify hardware, software or network needs allowing better electronic communication between the Division of Conservation's main office, conservation district offices, state and federal agencies, field staff and the general public.

**Tactic 7.8:** Continue development of OMSL Mine Safety and Mapping Capital IT Project (MIST) which will rewrite the existing application and ensure OMSL electronic inspections and licensing data can be uploaded directly to the database.

**Tactic 7.9:** Ensure that DOF can leverage funding to obtain needed licenses and technology tools available through the EEC OIS.

**Tactic 7.10:** Provide an improved method of GIS coordination, programming, and implementation throughout DNR.

### Progress:

The Division of Technical and Administrative Services (DTAS) assisted in the consolidation efforts by COT in technology planning and coordination for the Department. All equipment, including servers, laptops, and network operations are now under the auspices of COT.

The Division of Mine Safety (DMS) received \$972,000 in the form of a Capital IT project to rewrite the Common System application that tracks miners, mines, inspections, analysis and training. The new system, Mine Inspection Safety Tracking (MIST) is in the final phases of development, with Phase I implementation scheduled for October 2014. Phase I contains all modules that replace the Common System along with the electronic inspections application. Phase II modules (Drug Sanctions and Penalty and Assessments) have been developed; however, testing and implementation will occur early 2015. A byproduct of the new system will allow direct upload of electronic documents (inspections, analysis, training and education) to the database. Enhancements to the underground mine mapping system and interfaces to SMIS are planned as well. A single repository for DMS documents will reside in SharePoint

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to mimic DocTree. Electronic workflow to further streamline the business processes for the Inspection and Analysis personnel is part of Phase I implementation.

The Division of Forestry obtained federal funding to upgrade GIS servers for the Cabinet which increased speeds and efficiencies throughout the Cabinet/Department/Division. Efforts are ongoing to better share GIS resources and expertise. Currently, staff from the Division of Mine Permits (DMP) is assisting GIS personnel at the Division of Mine Safety to create a functional specification for ArcGIS upgrades required for enhancements to the Underground Mine Mapping System and mapping applications at DMP. The functional specification promises to aid greatly in the Mine Safety and Mapping Capital project.

The Division of Abandoned Mine Lands (AML) has entered into a Memorandum of Agreement with Commonwealth Office of Technology's Division of Geographic Information within the Finance and Administration Cabinet in the amount of \$390,269 to gather LiDAR for Perry, Knott, and Letcher Counties. This data will allow for a highly accurate bare earth model that can eliminate the need for much of our field-based surveying therefore saving valuable resources.

GIS continues to provide DNR a variety of applications, data, and custom maps. The primary GIS application used is ArcMap, which has been upgraded to version 10.1 for all users. Applications for inspectors' smart phones and tablets are being tested including PDFmaps, and Geocam for capturing geotagged photos. With it, inspectors are able to see themselves on mine maps while doing new walks and inspections.

GIS continues to assist Kentucky's Cumulative Hydrologic Impact Assessment (CHIA) Program. The DNR GIS staff has compiled the necessary data in the CHIA templates for the Hydrologic Unit Code (HUC)-12 watersheds. Using this data, a software application can be used to query water and other data sets, assemble tables, and create maps that allow for the reviewer to focus their efforts on analysis of the data. This contribution has significantly improved productivity.

Using VB.Net and ArcObjects, DNR staff developed and deployed a software application that automatically updates the individual CHIA information set for all 368 HUC12 watersheds in the coal bearing areas. Each watershed can contain a mining history, SMIS/STORET/KGS water quality results, KPDES mining related point locations, and a water quality violations list. Previous to this automation, only six to eight watersheds per day could be updated, resulting in a complete update cycle of three months. Currently this program runs nightly and updates groups of 13 watersheds per day, resulting in the entire 368 watersheds being updated every 30 days. These data are then compressed into zipped files and posted to the FTP site for download by the public. Included in each watershed data set is a results data viewer written in Microsoft Access that enables the user to view, manipulate, and analyze a specific HUC12's water quality results data.

Currently, DNR is actively participating in the GeoMine Pilot Project — an OSM concept of an internet accessible GIS database of coal mines in the United States. The geographic scope of the pilot project is limited to the SMCRA primacy states of Kentucky, Virginia, West Virginia, and the Federal-administered Tennessee program. All of the states involved in this project will have to compile and sort its data in order to display its coal mining data in the same format, and at one location online. With a task of this magnitude, and with limited personnel and funding, the GeoMine pilot project sought additional grant funding to support the states with assessing GIS needs and provide the most urgent needs to achieve the project's goals. Kentucky used the grant to obtain hardware and software. The funding also allowed

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the State to hire interns to assist with the data preparation and organization for this project. The bulk of the work was completed in the fall of 2013. DNR interns also worked in the AML office to extract Project Unit (PU) files and scan individual Project Area Descriptions (PAD) maps, and the accompanying data within each PU. They currently have digitized 4,861 Problem Areas, 1,779 Problem Units, 4,189 Problem Polygons, 363 Problem Lines, and 6,030 Problem Points.

Another recent development that positively impacts the geographic information that DNR receives is the issuance of RAM 158, superseding the previous RAM 148. RAM 148 called for the submission by Industry of polygonal boundaries for current and proposed permit boundaries, and proposed bonding increments, haul roads, fills, and impoundments. These are submitted in an industry-standard spatial data format that loads these boundaries directly into the geodatabase for immediate access by the permit reviewers. RAM 158 makes this boundary submittal mandatory, and was initiated November 1, 2013. Currently the GIS Section is receiving and processing an average of 75 boundaries per month. In addition, desktop tools have been written that enable each reviewer using the GIS to locate a permit from a list of their assigned permits, add any relevant MRP maps, and automatically zoom to the boundary with the click of a single button.

DNR continues to create additional digital data to address the agency's needs, train DNR staff on both the applications of the software systems and the different data types that are available in the system.

### **Objective 8 – Provide administrative support and guidance to the Department. (DTAS)**

- Tactic 8.1:** Improve the efficiency of personnel action process. Fill all personnel vacancies rapidly to maintain budgeted staffing numbers.
- Tactic 8.2:** Increase the amount of federal funds received through grant writing to support Department objectives when available.
- Tactic 8.3:** Properly support central office vehicle needs through tracking and maintenance.

#### Progress:

The department has continued to process personnel actions efficiently. For FY2014, DTAS handled or processed 857 personnel actions, including 37 arrivals and 74 departures. DTAS has successfully turned over actions within the timeframes given in staff work plans with the exception of those that required additional documentation.

GAPS implemented an online vehicle system (VTS) to properly support central office vehicle needs through tracking and maintenance. Each division has been trained and is expected to input data into the VTS. Reports available through the system provide vital management information:

- ensure that required maintenance is done
- ensure that vehicle usage/mileage is appropriate
- provides data regarding personnel with permanently assigned vehicles and justification for that assignment
- provides data for responding to requests from Finance to justify DNR's need for agency owned vehicles rather than leasing from Fleet.

Currently there are 19 vehicles in the motor pool at Hudson Hollow and a total of 684 for the department.

## ENERGY AND ENVIRONMENT CABINET STRATEGIC PLAN

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